

SONY

VIDEO GRAPHIC PRINTER

UP-897MD

SERVICE MANUAL

1st Edition

⚠ 警告

このマニュアルは、サービス専用です。

お客様が、このマニュアルに記載された設置や保守、点検、修理などを行うと感電や火災、人身事故につながる可能性があります。

危険をさけるため、サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.

To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.

Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manuel est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Manual Structure

Purpose of this manual

This manual is the service manual of Video Graphic Printer UP-897MD.
This manual describes the information on maintenance and the service information such as service overview, electrical alignment, circuit description, troubleshooting, and service mode (self-diagnosis function).

Related manuals

In addition to this "Service Manual", this unit is provided with the manual below.

- **"Operating Instruction" PDF (Included in the CD-ROM Supplied for products.)**

Part No.: 3-863-306-0X

These manuals describes the information required for the actual management and operation of this unit.

- **"Semiconductor Pin Assignments" CD-ROM (Available on request)**

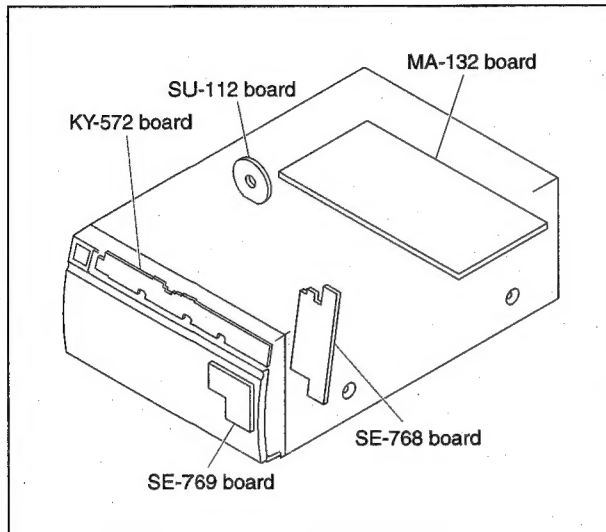
This "Semiconductor Pin Assignments" CD-ROM allows you to search for semiconductors used in B&P Company equipment.

Part number: 9-968-546-XX

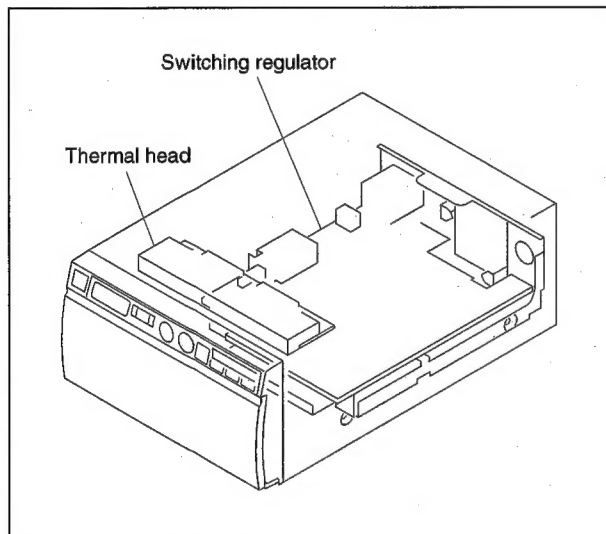
Section 1

Service Overview

1-1. Board Location



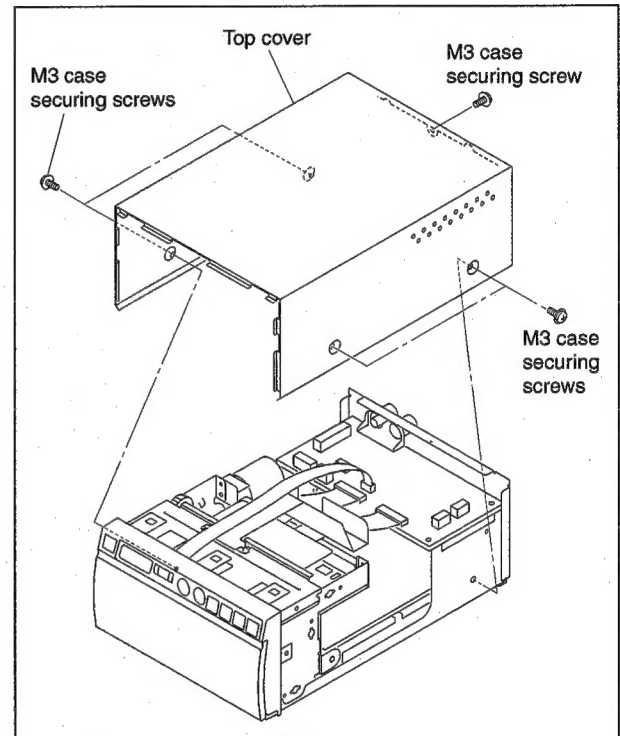
1-2. Main Parts Location



1-3. Removing/Installing the Cabinet

1-3-1. Top Cover

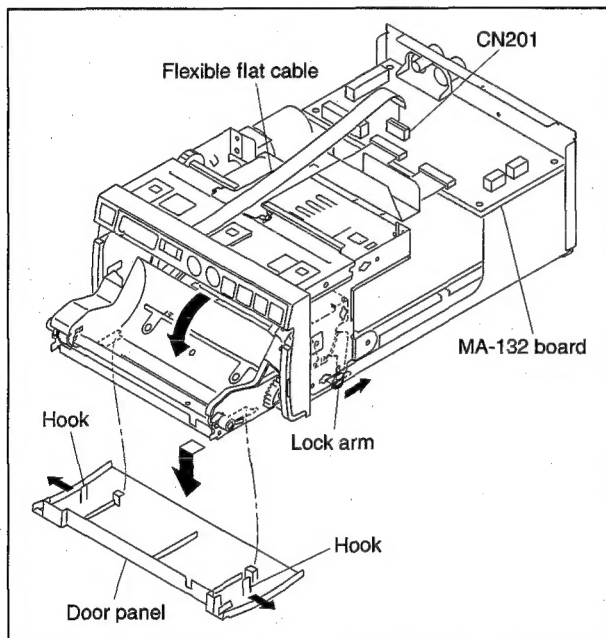
1. Remove the five M3 case securing screws, then remove the top cover.



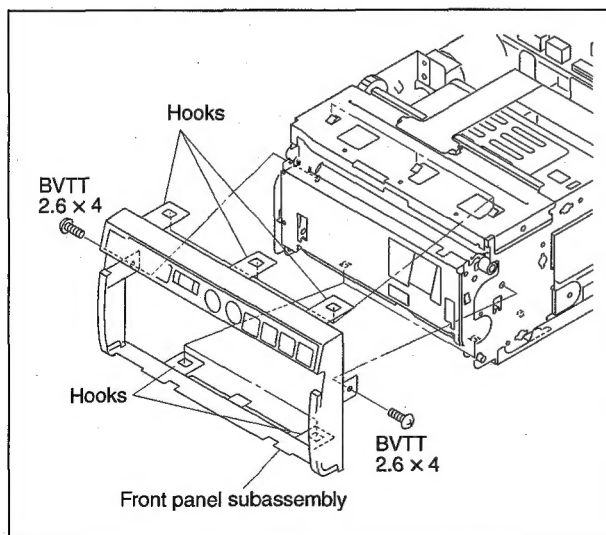
2. Attach the top cover in the reverse order.

1-3-2. Front Panel Subassembly

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Release the lock arm of the mechanical deck block (bottom surface) in the direction of the arrow, then open the door panel.
3. Remove the two hooks in both directions of the arrows.
4. Disconnect the flexible flat cable from the connector (CN201) on the MA-132 board.



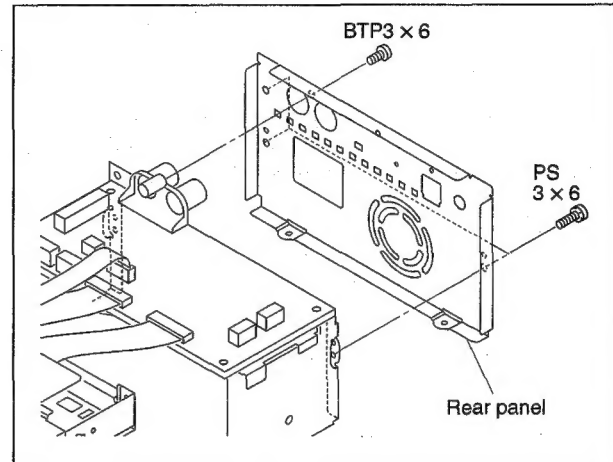
5. After closing the door, remove the two screws and five hooks, then remove the front panel subassembly.



6. Attach the front panel subassembly in the reverse order of steps 1 to 5.

1-3-3. Rear Panel

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the three screws (PS3 x 6) and the screw (BTP3 x 8), then remove the rear panel.



3. Attach the rear panel in the reverse order of steps 1 and 2.

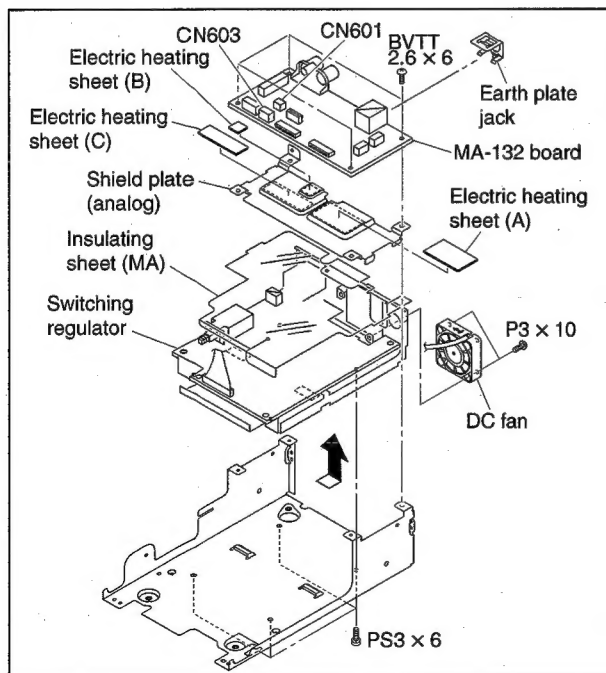
1-4. Replacing the Main Parts

1-4-1. Switching Regulator/DC Fan

Note

There are two types of DC fan mounting connectors. Connect the harness of the DC fan for power supply to the connector (CN601). The connector (CN603) is provided for mounting the optional DC fan for cooling the thermal head.

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel subassembly. (Refer to Section 1-3-2.)
3. Remove the rear panel assembly. (Refer to Section 1-3-3.)
4. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
5. Disconnect all harnesses and flexible flat cables from the MA-132 board.
6. Remove the four screws (BVTT2.6 × 6), then remove the MA-132 board, shield plate (analog) and earth plate jack.
7. Remove the electric heating sheet (A), electric heating sheet (B) and electric heating sheet (C) from the shield plate (analog).
8. Remove the two screws (P3 × 10), then remove the DC fan.
9. Remove the four screws (PS3 × 6), then remove the insulating sheet (MA) and switching regulator.

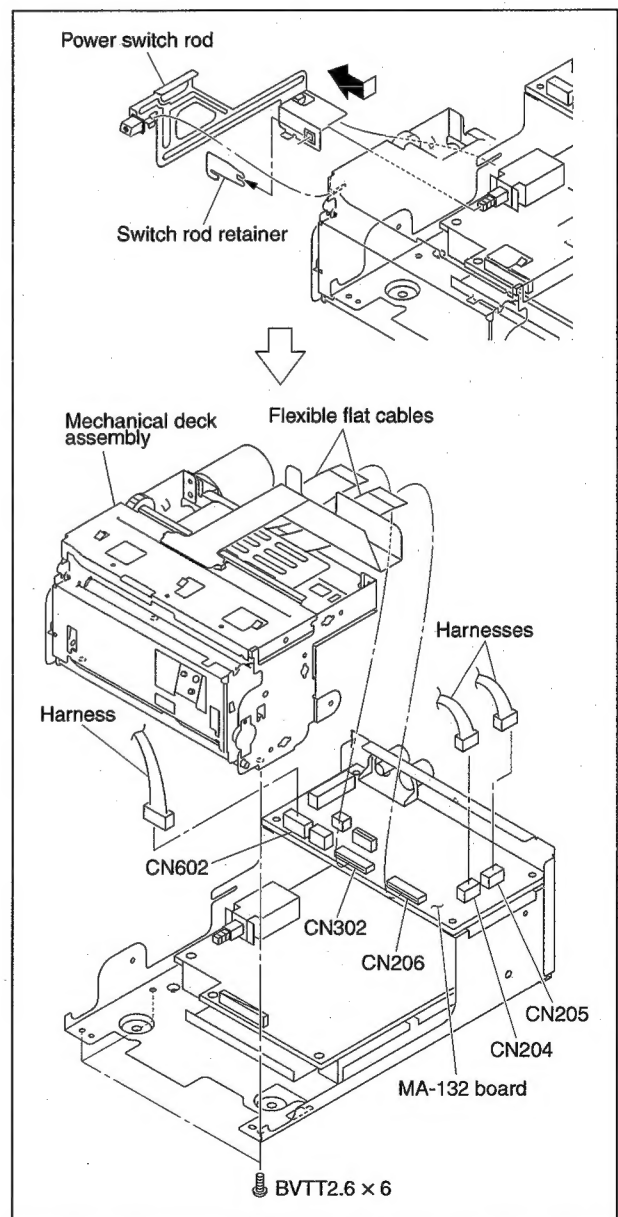


10. Attach the switching regulator in the reverse order of steps 1 to 9.

UP-897MD

1-4-2. Mechanical Deck Assembly

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel subassembly. (Refer to Section 1-3-2.)
3. Remove the switch rod retainer, then remove the power switch rod.
4. Disconnect the three harnesses from the connectors (CN204, CN205 and CN602) on the MA-132 board.
5. Disconnect the two flexible flat cables from the connectors (CN206 and CN302) on the MA-132 board.
6. Remove the three screws, then remove the mechanical deck assembly.



7. Attach the mechanical deck assembly in the reverse order of steps 1 to 6.

1-4-3. Thermal Head

Note

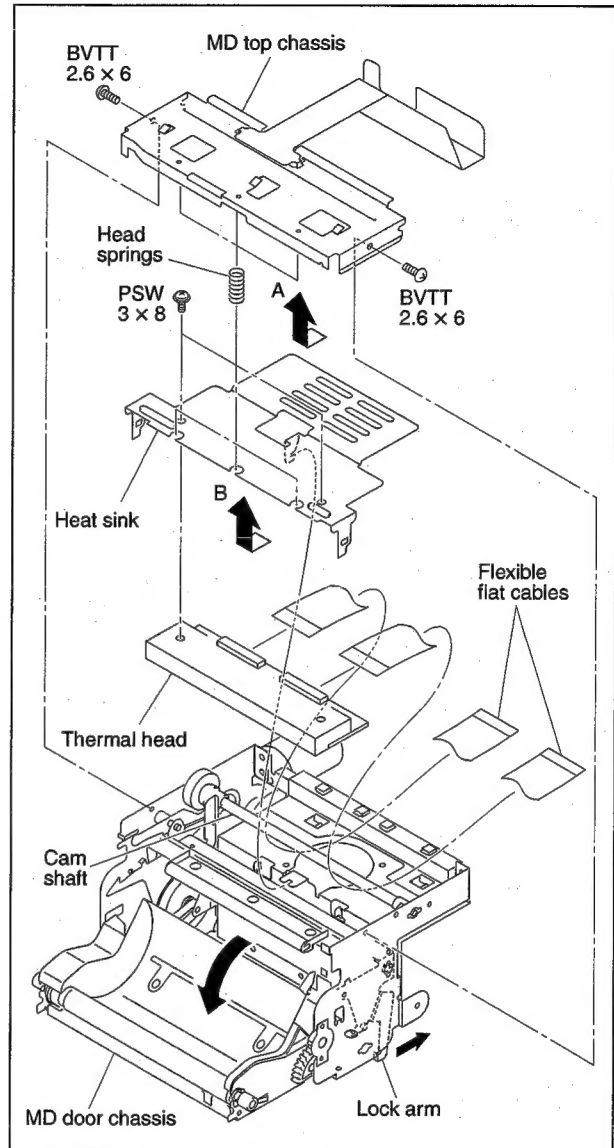
After replacing the thermal head, perform the head voltage adjustment. For the adjustment procedure, refer to Section 2-4.

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel assembly. (Refer to Section 1-3-2.)
3. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
4. Remove the two screws (BVTT2.6 × 6), then remove the MD top chassis and three head springs.

Note

When removing the MD top chassis, be sure to remove it slowly in the direction of the arrow A to prevent the head springs from popping out.

5. Release the lock arm in the direction of the arrow, then open the MD door chassis.
6. Remove the heat sink in the direction of the arrow B.
7. Remove the two screws (PSW3 × 8), then remove the thermal head.
8. Disconnect the two flexible flat cables from the thermal head.



9. Attach the thermal head in the reverse order of steps 1 to 8.

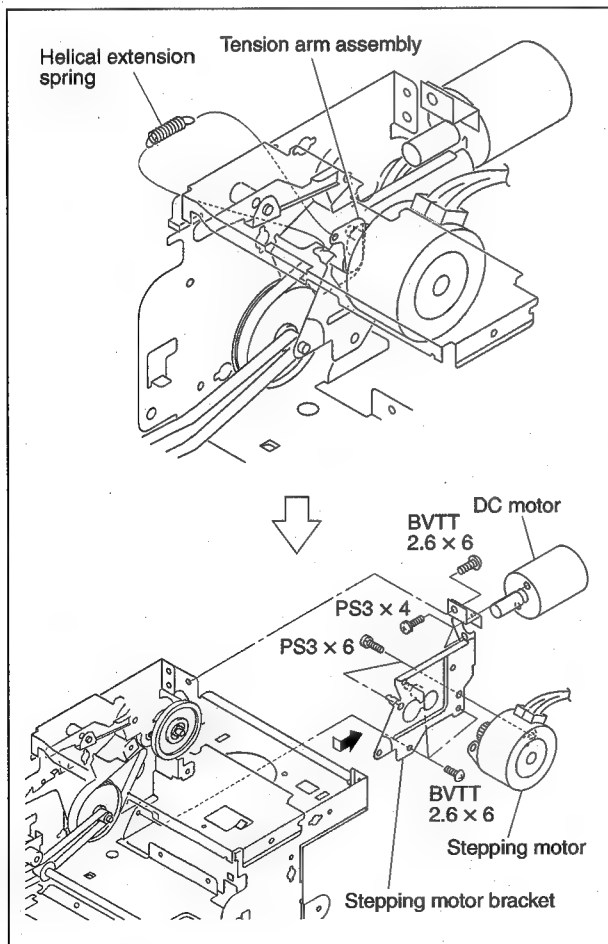
Note

When connecting the flexible flat cables, route them under the cam shaft.

1-4-4. Stepping Motor/DC Motor

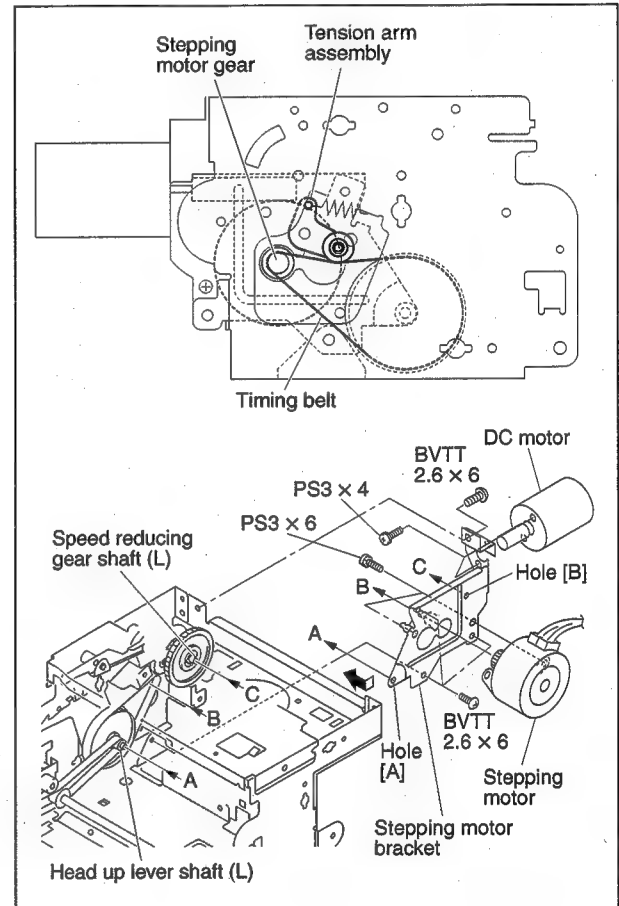
Removal

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel assembly. (Refer to Section 1-3-2.)
3. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
4. Remove the helical extension spring from the tension arm assembly.
5. Remove the four screws (BVTT2.6 × 6), then remove the stepping motor bracket.
6. Remove the two screws (PS3 × 4), then remove the DC motor.
7. Remove the two screws (PS3 × 6), then remove the stepping motor.



Installation

8. Attach the DC motor with the two screws.
9. Insert the head up lever shaft (L) into the hole [A] and insert the speed reducing gear shaft (L) into the hole [B], then attach with the three screws.
10. Hang the timing belt on the stepping motor gear.

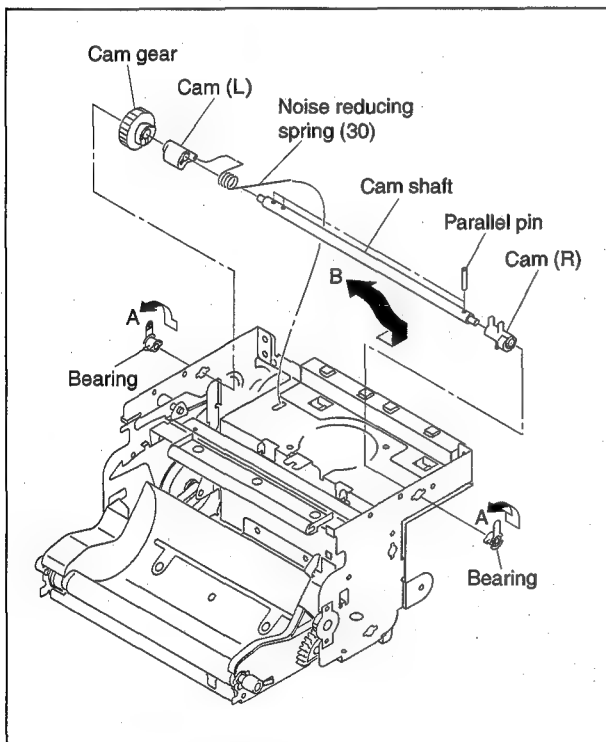


11. Assemble this unit in the reverse order of steps 1 to 4.

1-4-5. Cam Shaft Assembly

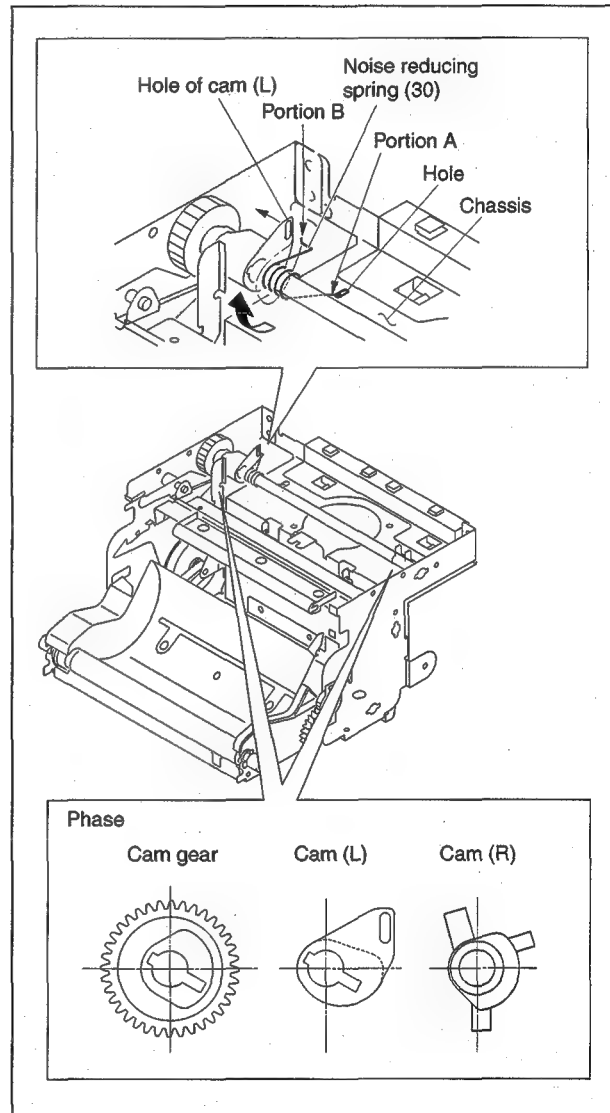
Removal

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel assembly. (Refer to Section 1-3-2.)
3. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
4. Remove the thermal head. (Refer to Section 1-4-3.)
5. Remove the paper holder assembly. (Refer to step 4 of Section 1-4-7.)
6. Remove the two bearings by rotating them in the direction of the arrows A.
7. Remove the cam shaft assembly in the direction of the arrow B.
8. Remove the cam (R), cam gear, cam (L), noise reducing spring (30) and three parallel pins from the cam shaft.



Installation

9. Attach the cam shaft assembly in the reverse order of steps 6 to 8.
10. Insert the portion A of noise reducing spring (30) into the hole of chassis, then insert the portion B into the hole of cam (L) by rotating it in the direction of the arrow.



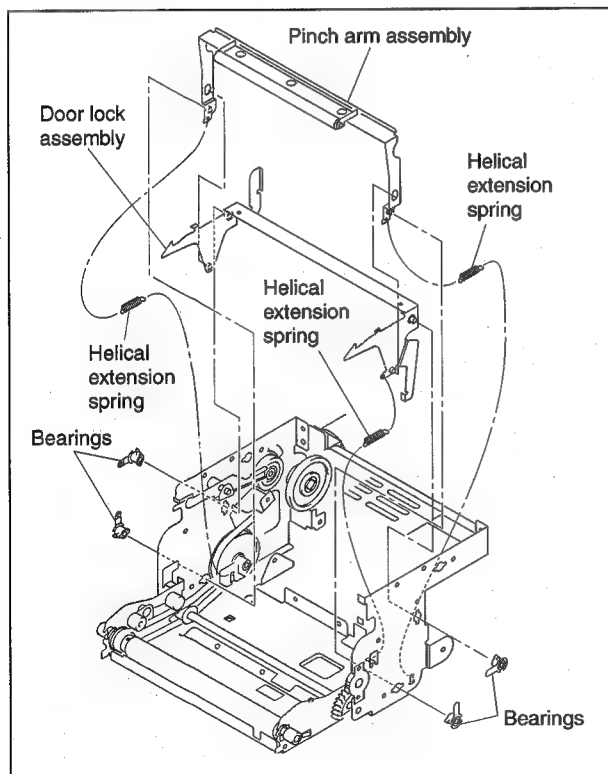
11. Assemble this unit in the reverse order of steps 1 to 5.

1-4-6. Pinch Arm Assembly

Note

When replacing the pinch arm subassembly, be extremely careful not to touch it with bare hands or dirty gloves. If the pinch arm subassembly is contaminated, clean it with the ethyl alcohol.

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel assembly. (Refer to Section 1-3-2.)
3. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
4. Remove the thermal head. (Refer to Section 1-4-3.)
5. Remove the paper holder assembly. (Refer to step 4 of Section 1-4-7.)
6. Remove the three helical extension springs.
7. Remove the four bearings, then remove the door lock assembly and pinch arm assembly in the direction of the arrow.
8. Remove the pinch arm assembly from the door lock assembly.



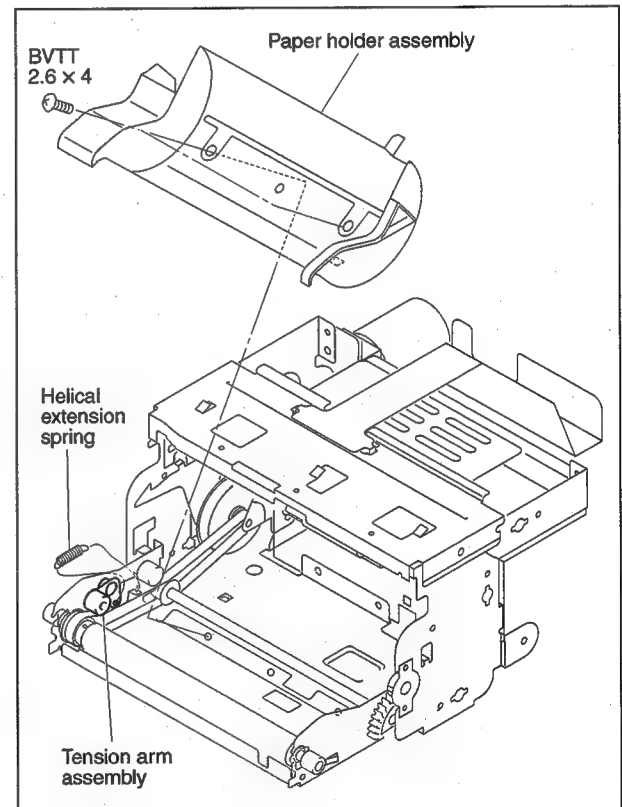
9. Attach the pinch arm assembly in the reverse order of steps 1 to 8. After attaching the pinch arm assembly, clean it with alcohol.

1-4-7. Platen Roller

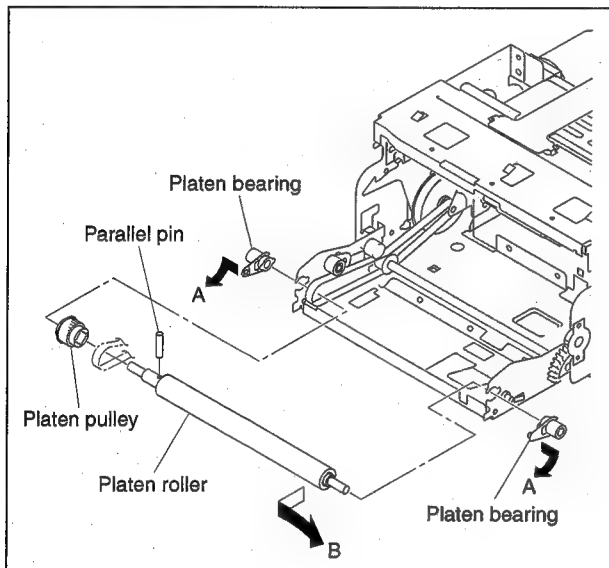
Note

When replacing the platen roller, be extremely careful not to touch it with bare hands or dirty gloves. If the roller is contaminated, clean it with the ethyl alcohol.

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel assembly. (Refer to Section 1-3-2.)
3. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
4. Remove the two screws, then remove the paper holder assembly.
5. Remove the helical extension spring from the tension arm assembly.



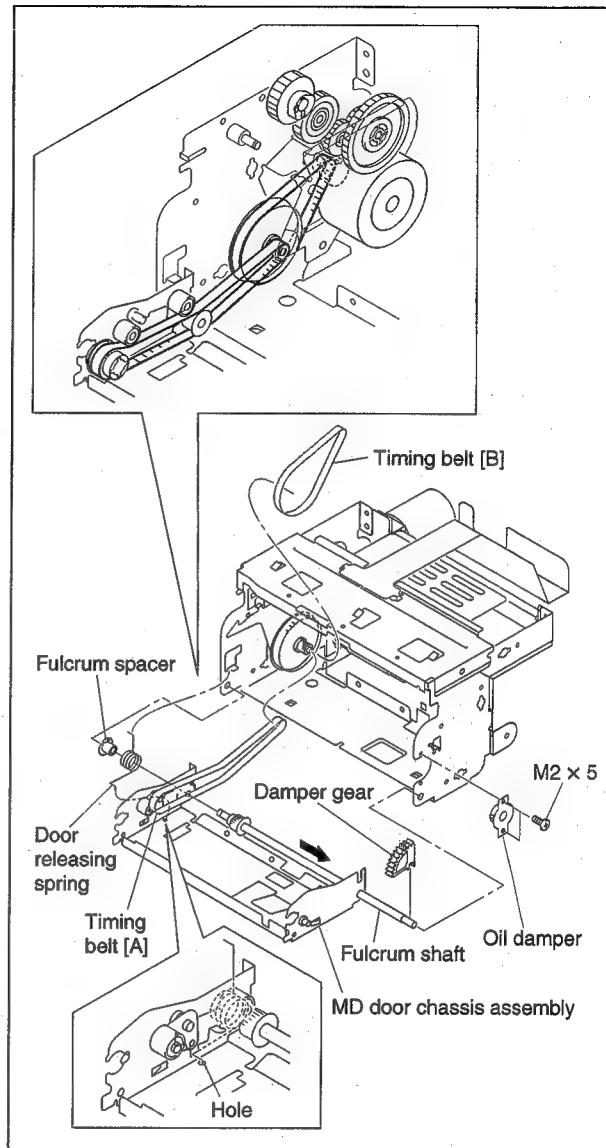
6. Remove the two platen bearings by rotating them in the direction of the arrow A.
7. Remove the platen roller in the direction shown by the arrow B.
8. Remove the platen pulley and parallel pin from the platen roller.



9. Attach the platen roller in the reverse order of steps 1 to 8.

1-4-8. Timing Belt

1. Remove the top cover. (Refer to Section 1-3-1.)
2. Remove the front panel assembly. (Refer to Section 1-3-2.)
3. Remove the mechanical deck assembly. (Refer to Section 1-4-2.)
4. Remove the paper holder assembly. (Refer to step 4 of Section 1-4-7.)
5. Remove the two screws, then remove the oil damper.
6. Remove the damper gear.
7. Remove the door releasing spring from the hole of MD door chassis, then remove the MD door chassis assembly.
8. Remove the fulcrum spacer, then remove the door releasing spring.
9. Pull out the fulcrum shaft from the MD door chassis assembly in the direction of the arrow.
10. Remove the timing belt [A] and timing belt [B].



11. Attach the timing belt [A] and timing belt [B] in the reverse order of steps 1 to 10.

1-5. Procedure Required for Replacement

When replacing the following parts, perform each required process according to the table below. For the procedure before and after performing the required process, refer to Section 2-1.

Parts	Required process	Reference
MA-132 board	Firmware Version Upgrade	Section 2-6
IC103 (MA-132 board)		
KY-572 board	Calibration and Electrical Conductivity Check	Section 2-2
Switching regulator	Head Voltage Adjustment	Section 2-4
Thermal head		

1-6. Unleaded Solder

Boards requiring use of unleaded solder are printed with a lead free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



: LEAD FREE MARK

Notes

- Be sure to use the unleaded solder for the printed circuit board printed with the lead free mark.
- The unleaded solder melts at a temperature about 40 °C higher than the ordinary solder, therefore, it is recommended to use the soldering iron having a temperature regulator.
- The ordinary soldering iron can be used but the iron tip has to be applied to the solder joint for a slightly longer time. The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful.

Section 2

Electrical Alignment

2-1. Procedure before and after Adjustment

Print out the record of user setting before performing the board replacement and adjustment. For the procedure of printing out the record, refer to Section 2-1-1.

If the history record of user setting cannot be printed due to the failure of this unit, reset the unit to the factory setting after performing the board replacement and adjustment. (Refer to Section 2-1-3.)

2-1-1. Procedure of Printing the User Setting Record (Before Adjustment)

Print out the top menu record of setting (last setting) and the list of all setting in the following procedure. After completing the board replacement and adjustment, if the setting is different from the contents of record printed before adjustment, adjust the setting so that it becomes the same as the setting before adjustment. Complete the procedure by adjusting the setting to the contents of top menu record.

Procedure

1. Turn on the **POWER**. "READY" is displayed on LCD of this unit.
2. Press the **OPEN** button to open the door panel.
3. Set the thermal paper and close the door panel.
4. Press the jog dial.
5. Print out the record of the top menu (last setting) displayed on LCD.
6. Rotate the jog dial to display "MENU" on LCD, then press the jog dial.

All settings are printed on the thermal paper.

Note

Be sure to keep the printed sheets (user setting) because they are used as the reference to check the setting after adjustment.

2-1-2. User Setting Check Procedure (After Adjustment)

After completing the adjustment, reset this unit to the user setting in the following procedure.

Procedure

1. Print out the setting of this unit. (Refer to steps 1 to 6 of Section 2-1-1.)
2. Compare the setting list printed in step 1 with the setting list (used as reference) printed in step 6 of Section 2-1-1.

Note

If there is any difference between the settings, adjust to the reference setting using the jog dial.

If there is no difference, press the jog dial.

(Setting is completed.)

3. After adjusting the setting to the reference setting, press the jog dial. The adjusted setting is displayed on LCD.
4. Check that the contents of setting are correct, then press the jog dial.

2-1-3. Factory Setting

Procedure

1. Turn on the **POWER** while pressing the **OPEN** button.

Note

The beep sound is made immediately after turning on the **POWER** and after that again.

2. Release the **OPEN** button, then press the **PRINT** button.

Note

Press the **PRINT** button within 3 seconds after the second beep sound in step 1 is made.

3. Check that this unit becomes the following state. (Change to the factory setting)
 - (1) Backlight is off.
 - (2) Backlight lights in green.
 - (3) Backlight lights in red.
 - (4) Flashes two times automatically.
 - (5) Beep sound is made.

2-2. Calibration and Electrical Conductivity Check

After replacing the KY-572 or MA-132 board, perform the calibration of brightness and contrast volumes, and perform the electrical conductivity check of each button.

1. Turn on the power while pressing the **PRINT** button and **COPY** button simultaneously.

The service mode starts.

Note

Do not release the **PRINT** button and **COPY** button before the beep sound is made.

2. Press the jog dial two times.
"SVC" and then "PATAN" are displayed on LCD in order.
3. Rotate the jog dial to display "BR:CAL".
4. Press the jog dial.

The calibration mode of brightness starts.

- (1) Rotate the BRIGHT volume fully to the left in the state that "BR:LEF" is displayed on LCD, then press the jog dial.
 - (2) Rotate the jog dial to display "BR:RIG" and rotate the BRIGHT volume fully to the right in the state that "BR:RIG" is displayed on LCD, then press the jog dial.
 - (3) Rotate the jog dial to display "BR:CEN" and return the BRIGHT volume to the center in the state that "BR:CEN" is displayed on LCD, then press the jog dial.
5. Rotate the jog dial to display "BACK", then press the jog dial.
 6. Rotate the jog dial to display "CO:CAL".
 7. Press the jog dial.

The calibration mode of contrast starts.

- (1) Rotate the CONT volume fully to the left in the state that "CO:LEF" is displayed on LCD, then press the jog dial.
- (2) Rotate the jog dial to display "CO:RIG" and rotate the CONT volume fully to the right in the state that "CO:RIG" is displayed on LCD, then press the jog dial.
- (3) Rotate the jog dial to display "CO:CEN" and return the CONT volume to the center in the state that "CO:CEN" is displayed on LCD, then press the jog dial.

8. Check the electrical conductivity of the **FEED** button.

Press the **FEED** button.

The error beep sound is made.

Note

The electrical conductivity of other buttons can be checked by calibration.

9. Check the electrical conductivity of the **OPEN** button.

Press the **OPEN** button.

The front door is opened.

10. Turn off the power.

2-3. Brightness and Contrast Adjustment

After replacing the MA-132 board, perform the following adjustment procedure.

Required equipment

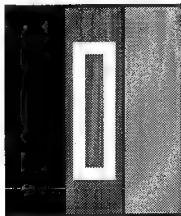
- Monitor
- Digital voltmeter
- 10 step signal generator
(Equivalent to Tektronix 1410 (NTSC signal))

Connection

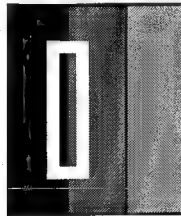
- Input signal: 10 step signal
- Connect this unit and the monitor.

Procedure

1. Reset this unit to the factory setting.
(Refer to Section 2-1-3.)
2. Rotate the jog dial to display "VOLME" on LCD, and then press the **OPEN** button.
The adjustment mode starts.
3. Check that the CONTRAST volume and BRIGHT volume are displayed at the center.



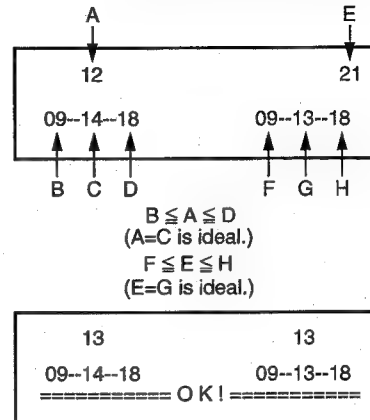
OK



NG

4. An oblong-shaped frame is displayed almost at the center of each step.

5. Adjust with \odot RV503 and \odot RV504 while checking the monitor until the specification is satisfied.



6. Check that "OK" is displayed at the bottom of the screen.

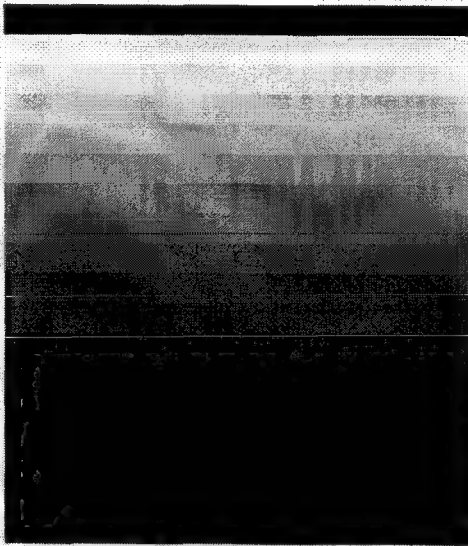
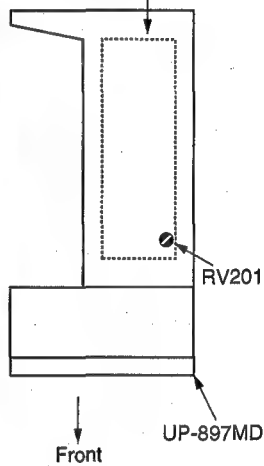
2-4. Head Voltage Adjustment

After replacing the thermal head or the switching regulator, perform this adjustment.

Note

Before starting the replacement, print out the stairstep test pattern which is used as the reference of adjustment.

Before replacing the switching regulator, measure the voltage of TP302 on the MA-132 board and take a note of the value.

State during adjustment	Specification	Adjustment point
<ul style="list-style-type: none"> Input signal: None Set the POWER switch to ON while pressing the PRINT and COPY buttons. When pressing the jog dial three times, "SVC", "PATAN", and "PA:CRS" are displayed in order. Rotate the jog dial in this state to display "PASTP" and press the jog dial. Then, the stairstep test pattern is printed. 	<p>Note</p> <p>Do not release the buttons before checking that the backlight blinks.</p>  <p>Test pattern</p> <p>After replacing the switching regulator Adjust ⓪RV201 so that the voltage becomes the same as the voltage of TP302 measured before adjustment. Print out the stairstep test pattern after adjustment and check that it is in the same level as the test pattern printed before adjustment.</p> <p>After replacing the head Adjust ⓪RV201 so that the stairstep test pattern becomes the same level as the test pattern printed before adjustment.</p>	<p>⓪RV201/Switching regulator</p> <p>Switching regulator (right side)</p>  <p>RV201</p> <p>UP-897MD</p> <p>Front</p>

2-5. Initialization of Print Count History

After replacing the thermal head, perform the initialization of print count history.

State during adjustment	Specification	Adjustment point
<ul style="list-style-type: none">• Input signal: None• Set the POWER switch to ON while pressing the PRINT and COPY buttons.• When pressing the jog dial two times, "SVC" and "PATAN" are displayed in order. Rotate the jog dial in this state to display "RESET" and press the jog dial. "R:MENU" is displayed and rotate the jog dial. After displaying the "R:H.PRN", then press the jog dial.	<p>Check that "RESET" is displayed. The initialization of print count history is completed (count becomes "0").</p>	None

2-6. Firmware Version Upgrade

After replacing the MA-132 board or IC103 on the MA-132 board, be sure to perform the firmware version upgrade.

Note

Never turn off the power during the firmware version upgrade.

Required equipment

- Personal computer (hereafter referred to as PC)
(USB interface is mounted.)
OS: Windows 2000/XP
Driver: Driver software of UP-D897 is installed.
- Utility software for version upgrade.

Note

Download the adjustment utility software from the URL described in the technical memo.

- Latest firmware

Note

Download the latest firmware from the GSP homepage or from the URL described in the technical memo.

- USB cable

Note

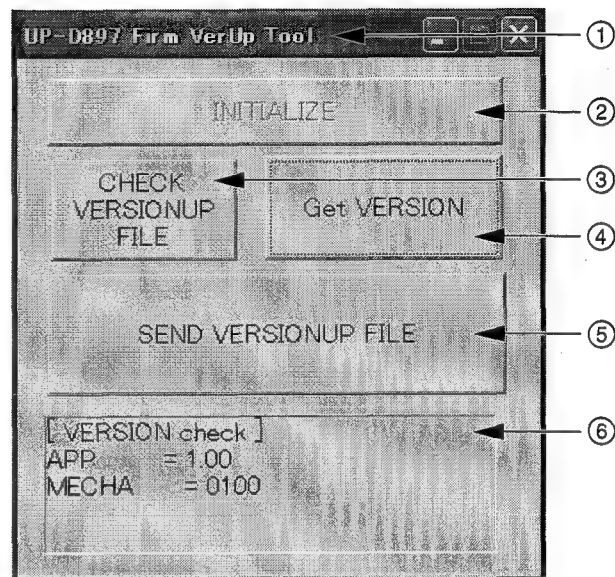
Use the cable of A-minB connector.

Preparation

1. Remove the USB plate of the rear panel of this unit, then connect this unit and PC using the USB cable.
2. Turn on the power of this unit and PC.
3. Install the driver software in PC.
(Only when it is not installed.)
4. Copy the latest firmware to the directory same as the version upgrade utility.

Version upgrade

1. Start the version upgrade utility software.
The version upgrade utility software screen is displayed.



Number	Description
①	Model name to be upgraded
②	Search for the version upgrade model
③	Check of version upgrade file information
④	Check of firmware version written in this unit
⑤	Write the firmware in IC103 on the MA-132 board.
⑥	Status display window

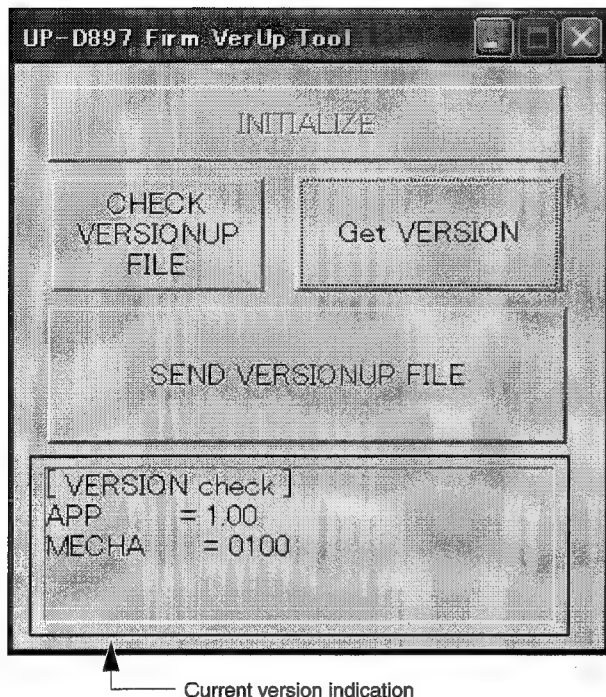
2. Click the **INITIALIZE** button.

Note

In the case that the version upgrade utility software for the version upgrade of this unit is installed, the **CHECK VERSIONUP FILE** and **Get VERSION** buttons are enabled. In case that the cable is not connected or the version upgrade utility software for the version upgrade of this unit is not installed, the **CHECK VERSIONUP FILE** and **Get VERSION** buttons are disabled in gray out state.

When the **CHECK VERSIONUP FILE** and **Get VERSION** buttons are in gray out state, check the connection of PC and this unit, or the version upgrade utility software.

3. Click the **Get VERSION** button.
The installed firmware version is displayed.



Procedure after completion of version upgrade

1. Turn off the power of this unit and PC, and then disconnect the USB cable.

4. Check or take a note of the version displayed in step 3.
5. Click the **CHECK VERSIONUP FILE** button.
The VUP file information is displayed on another window.
6. Check the version and date to make sure that the downloaded firmware is the latest version.
7. Click the **SEND VERSIONUP FILE** button.
The writing of firmware starts.
Note
When the writing starts, the LED backlight changes from staying lit to blinking, the beep sound is made. After this, the writing is completed when the backlight changes from blinking to staying lit.
8. Check that the writing is completed, and then turn the power of this unit off and on again (restart).
9. Start the version upgrade utility software.
10. Click the **INITIALIZE** button.
11. Click the **Get VERSION** button.
12. Make sure that the firmware is the latest version on the utility screen.
13. Exit the version upgrade utility software.

Section 3

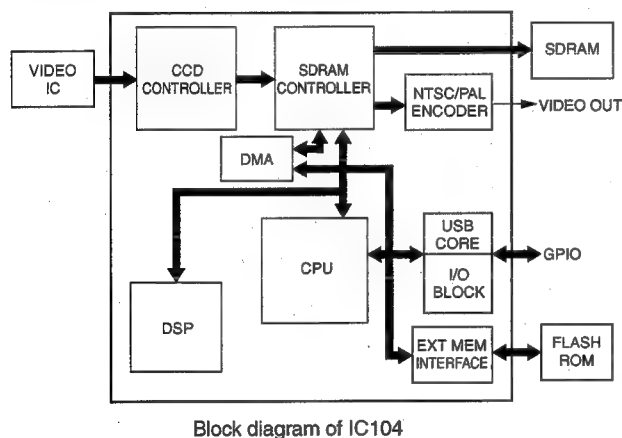
Circuit Description

3-1. System Control Block

3-1-1. Outline

System control is performed using IC104 (TMS320DM310ZHK22) on the MA-132 board. The system control block consists of the following blocks.

- CPU block (ARM925)
- SDRAM control block
- External memory control block (Flash memory, etc.)
- DSP block (Image processing)
- External interface block (USB1.0, memory cards, video encoder, and CCD interface)



3-1-2. Block Diagram of Electrical Block

Refer to "Section 6 Block Diagram".

3-2. Head/Mechanical Control Block

3-2-1. Outline

The thermal head/mechanical control block is the circuit block of IC202 (CXD9182AGG) on the MA-132 board. There is an external I/O block except the thermal head/mechanical control block.

3-2-2. Platen Motor Control

A platen driving stepping motor controls the forward rotation/reverse rotation and rotation speed when IC202 controls driving transistors (Q603 to Q606).

IC202	Signal name	State			
Pin 46	PM_A1	L	L	H	H
Pin 47	PM_A2	H	H	L	L
Pin 92	PM_B1	L	H	H	L
Pin 93	PM_B2	H	L	L	H

Forward rotation →
 ← Reverse rotation

3-2-3. Thermal Head UP/DOWN Control

A thermal head UP/DOWN DC motor is driven using a driving circuit (IC201 on the SE-768 board). The DC motor can be rotated in the forward and reverse directions. It is controlled by IC202. Two types of optical position sensors (photo-interrupters PH201 and PH203 on the SE-768 board) detect the DC motor position and IC202 reads it.

Operation of Head UP/DOWN Motor

DC motor	IC202 (pin 1) or CN204 (pin 8) DCM_0	IC202 (pin 2) or CN204 (pin 7) DCM_1	Operation
Forward rotation	L	H	The thermal head is raised.
Reverse rotation	H	L	The thermal head is lowered.
Brake	H	H	Stop
Stop	L	L	Stop

State of position sensor

Position	IC202 (pin 53) or CN204 (pin 3) HEAD_P_SENSE	IC202 (pin 96) or CN204 (pin 5) HEAD_P2_SENSE	State
PRINTING	L	H	Printing
HOME	H	L	Standby (Usually)
DOOR OPEN	H	H	Door unlocked

3-2-4. Monitoring of Door Sensor

The door position is read using an optical door position sensor (photo-interrupter PH202 on the SE-768 board) by IC202.

State of door position sensor

Position	IC202 (pin 87) or CN204 (pin 2) DOOR_SENSE	State
CLOSE	H	The door is closed.
OPEN	L	The door is opened.

3-2-5. Monitoring of Paper Sensor

Whether thermosensible paper is correctly set in this unit is detected using two pairs of optical paper sensors (photo-transistors Q102 and Q302 on the KY-572 and SE-769 boards) and read using IC202.

State of paper sensor

IC202 (pin 43) or CN201 (pin 7) AD3 (PAPER_SENSE)	IC202 (pin 175) or CN205 (pin 2) AD5 (PP_EMP_SENSE)	State
H	H	Paper
L	L	No paper
H	L	No paper (Paper exists in an eject port and does not exist in a tray.)
L	H	No paper (Paper does not exist in an eject port and exists in a tray.)

3-2-6. Monitoring of Head Temperature Sensor

The change in the resistance value of a thermistor in a thermal head is converted into a voltage and read using IC202. The A/D-converted voltage value corrects the density (gamma), controls the head cooling fan motor, and discriminates whether to clean the head.

3-2-7. Control of Head Fan Motor (for Head Cooling)

A head fan motor operates when IC202 controls driving transistors (Q607 and Q608). The head fan motor is turned on when the head temperature is more than approximately 62°C (cooling) or during printing.

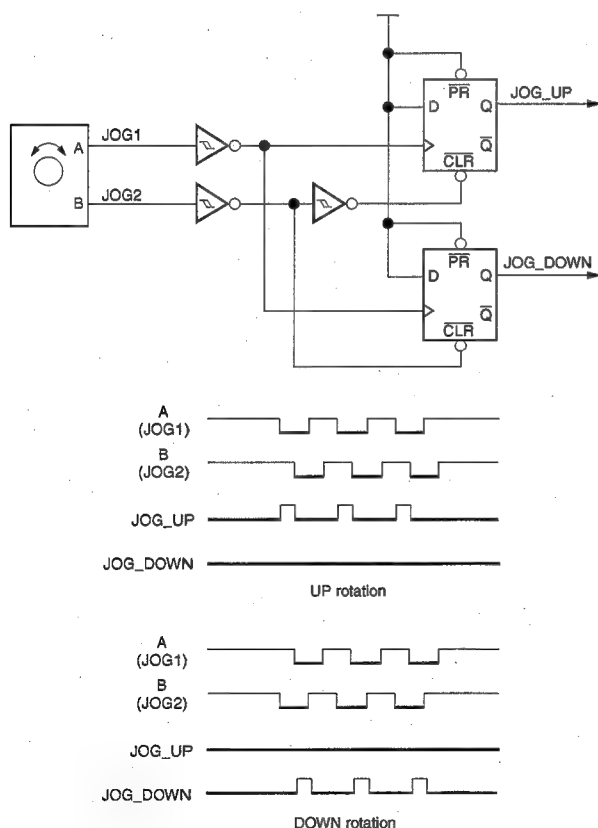
Operation of head fan motor

IC202 (pin 94) HEAD_FAN	Operation
L	OFF
H	ON

3-2-8. Read of Buttons

The **PRINT**, **OPEN**, **COPY**, **FEED**, and jog dial buttons on the front panel and the **REMOTE** button on the rear panel are monitored. Each button (not including jog dial buttons UP and DOWN) is shifted to operation after the falling of a signal is detected. Jog dial buttons UP and DOWN are shifted to operation after the rising of a signal is detected.

IC202	Signal name	Function
Pin 7	KEY1	OPEN
Pin 98	KEY2	PRINT
Pin 55	KEY3	COPY
Pin 133	KEY4	FEED
Pin 6	JOG3	ENTER
Pin 54	JOG_UP	Rotates the jog dial upward.
Pin 97	JOG_DOWN	Rotates the jog dial downward.



3-3. Video Circuit Block

3-3-1. Outline

A composite video signal is input from the BNC connector (VIDEO IN) to the MA-132 board. 75 Ω termination is turned on and off using a slide switch on the rear panel. After that, a signal is input to a video circuit (IC501) for sync separation, low-pass filter processing, brightness/contrast, and AGC processing. The output signal is input to an A/D converter. The digitized signal is read to a system control block.

3-3-2. Control of Video Circuit Block

A chroma trap filter, low-pass filter, and AGC are turned on and off, and NTSC/PAL and THR/EE are switched using a general-purpose port of IC202, respectively.

IC202	Signal name	Function
Pin 29	TH/EE_OUT	Switches TH/EE. H: EE L: TH
Pin 76	NTSC/PAL_SW	Switches NTSC/PAL. H: NTSC L: PAL
Pin 31	AGC_SW	Turns on and off AGC. H: ON L: OFF
Pin 30	LPF_SW	Turns on and off the low-pass filter. H: ON L: OFF
Pin 115	TRAP_SW	Turns on and off the trap filter. H: ON L: OFF

3-3-3. Control of Brightness and Contrast

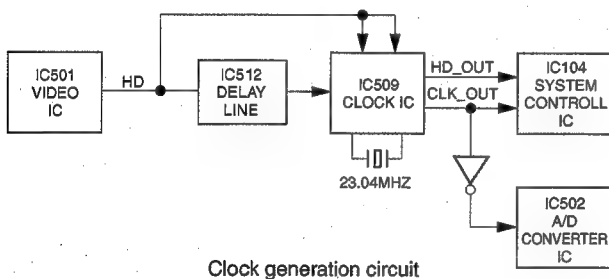
Brightness and contrast are controlled by inputting the voltage, obtained using a volume control on the front panel, to IC501 (BRIGHT: pin 38, CONTRAST: pin 39). The gain of an internal video amplifier then changes and can be adjusted.

3-3-4. A/D and D/A Conversion

The video signal output from a video circuit (IC501) is converted into a digital signal using an A/D converter and transferred to memory using a system control circuit (IC104). The A/D-converted data is D/A-converted using a video encoder in the system control circuit (IC104) and input to a video circuit (IC501). After that, the data is output to the BNC connector via the selector switch in a video circuit. In ordinary EE, instead of this path, data is looped in a video circuit and output via the selector switch described above. Data is output from a system control circuit in the case of the scale change for which a video signal is processed.

3-3-5. Clock Generation Circuit Block

A clock of 23.04 MHz is generated as the sampling clock of a video signal using a clock circuit (IC509). The phase of the clock generated using this clock circuit is adjusted to the phase at the falling edge of an HD pulse (horizontal sync pulse) during image read operation. The read position can be always made constant when the phase relation between the HD pulse and clock is compensated.



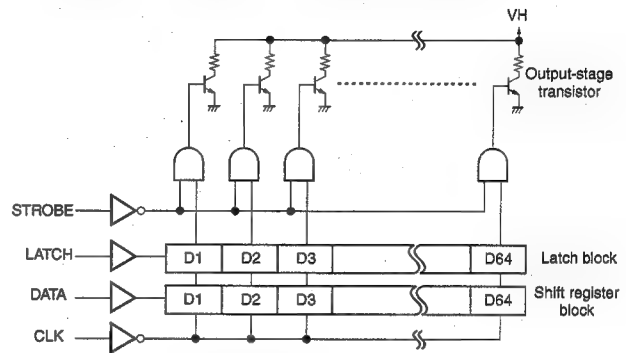
3-4. USB Interface

There is a USB1.0 interface (mini B connector) for firmware rewrite operation. The USB1.0 interface is controlled by IC104 (TMS320DM310ZHK22). Refer to "2-6. Firmware Version Upgrade" for how to rewrite firmware.

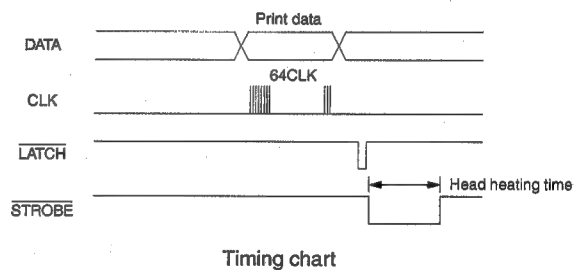
3-5. Thermal Head Block

3-5-1. Structure

A thermal head consists of 1280 dots (64 bits × 20) per line. There are twenty pairs of blocks below.



Internal circuit configuration of thermal head (corresponding to one port)



3-5-2. Basic Operation

Each signal is input from IC202 to the thermal head for operations below.

- (1) Print data is input to the shift register block in synchronization with a CLK pulse. (64-bit data)
- (2) The data input in step (1) is moved from the shift register block to the latch block when a latch pulse is input.
- (3) When a STB pulse is input, the "H" and "L" data of a latch block turn on and off an output-stage transistor and a resistor is heated for the color development of thermosensible paper.

3-5-3. Temperature Correction

The print energy required for thermosensible paper changes moment by moment due to the heating and thermal storage of a thermal head during change in room temperature or continuous printing. Therefore, the corresponding correction is required. In this unit, IC202 measures the temperature change of a thermal head from the internal thermistor of the thermal head. IC202 then converts the temperature change into 8-bit head temperature data and corrects the change in concentration for the temperature on which gamma characteristics were reflected. The concentration change can be corrected by controlling the width of a STB pulse.

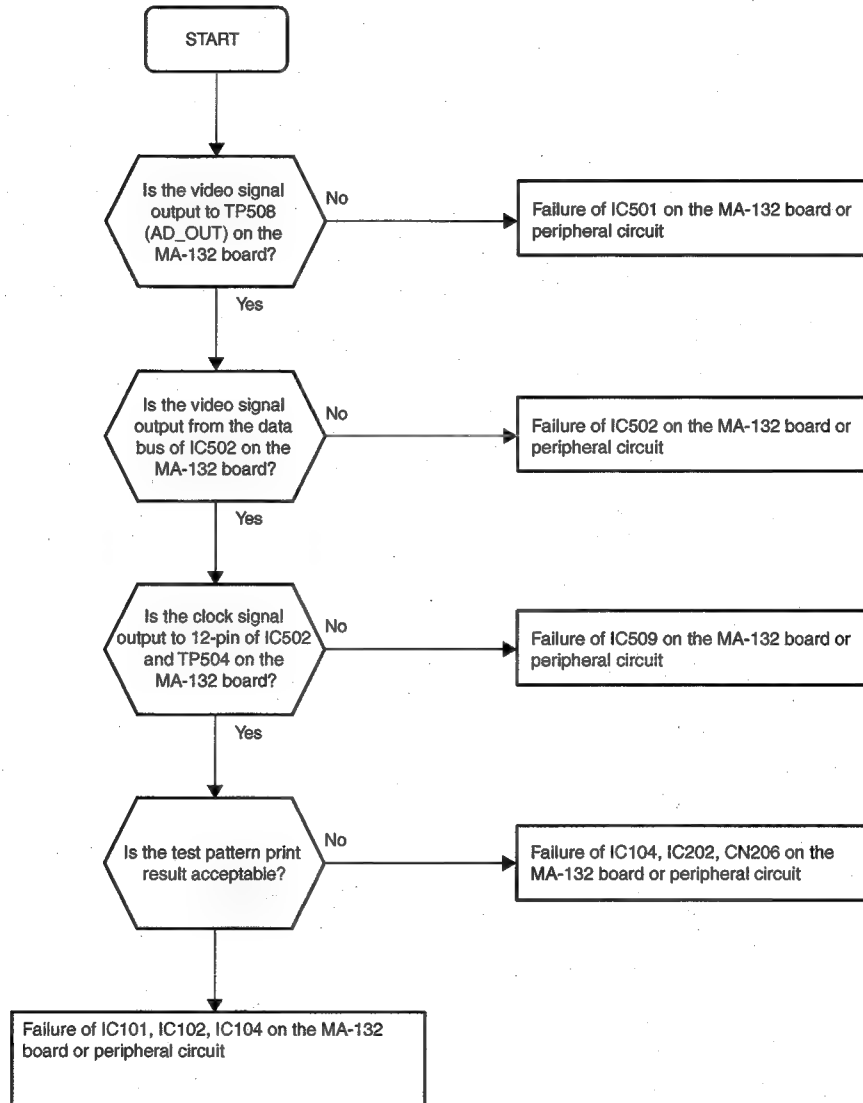
3-5-4. Correction of Resistor Count

The total current flowing through a thermal head differs in the state where the resistors of the thermal head are all turn on or partially turned on. Therefore, an error occurs in the energy applied to each resistor. When print is made without correcting an error, a stripe occurs in the print result at the point where the number of resistors in which a thermal head is turned on changes rapidly. A circuit that corrects this stripe is incorporated into IC202.

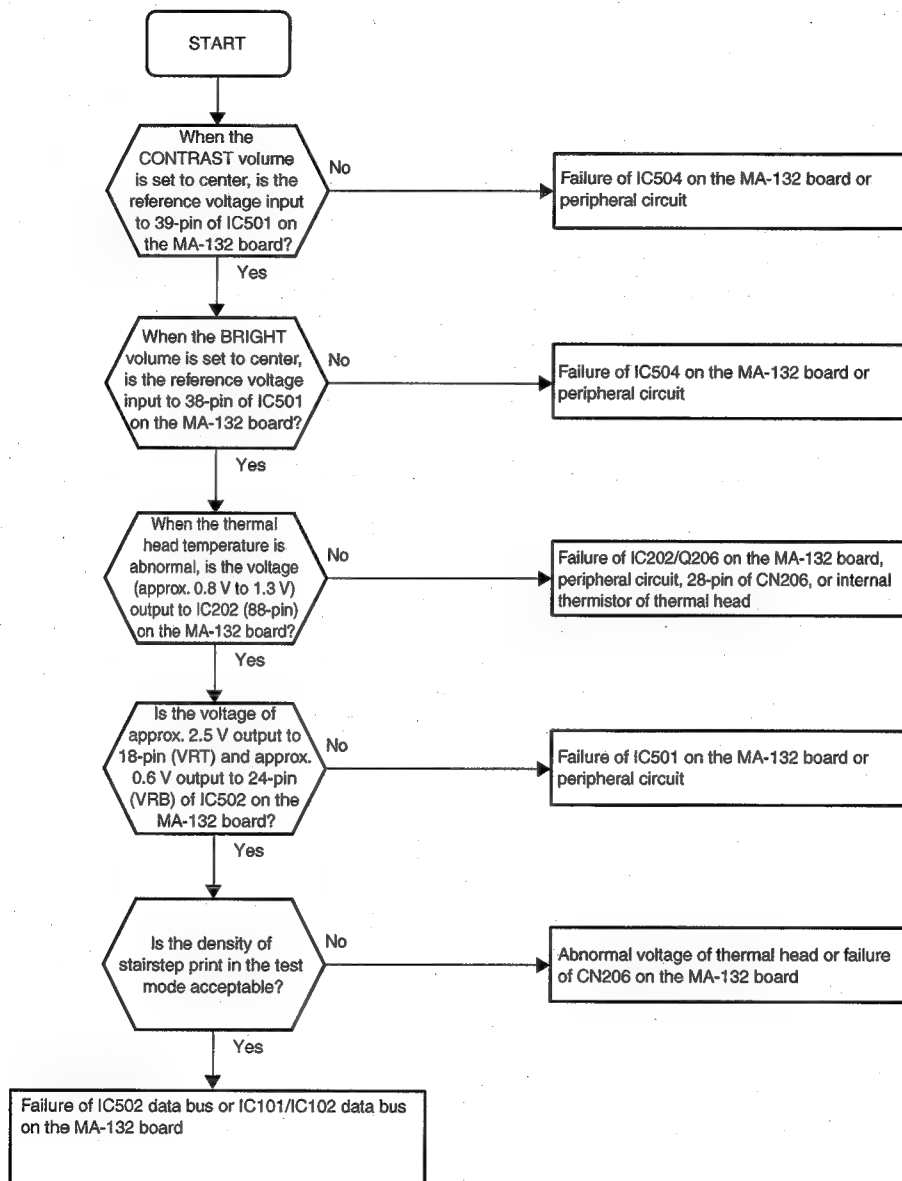
Section 4

Troubleshooting

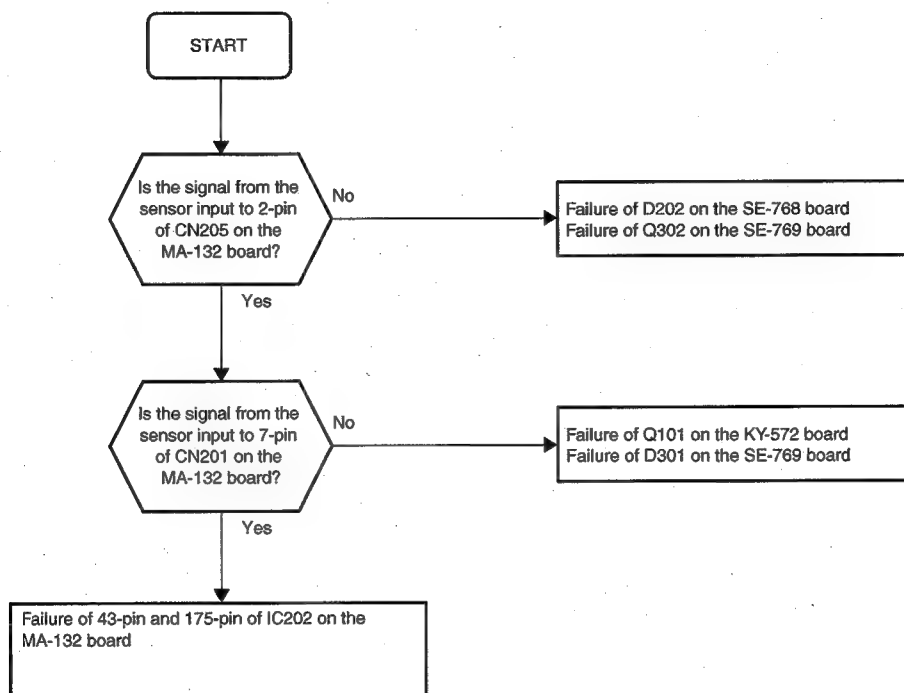
4-1. Print result is not satisfactory



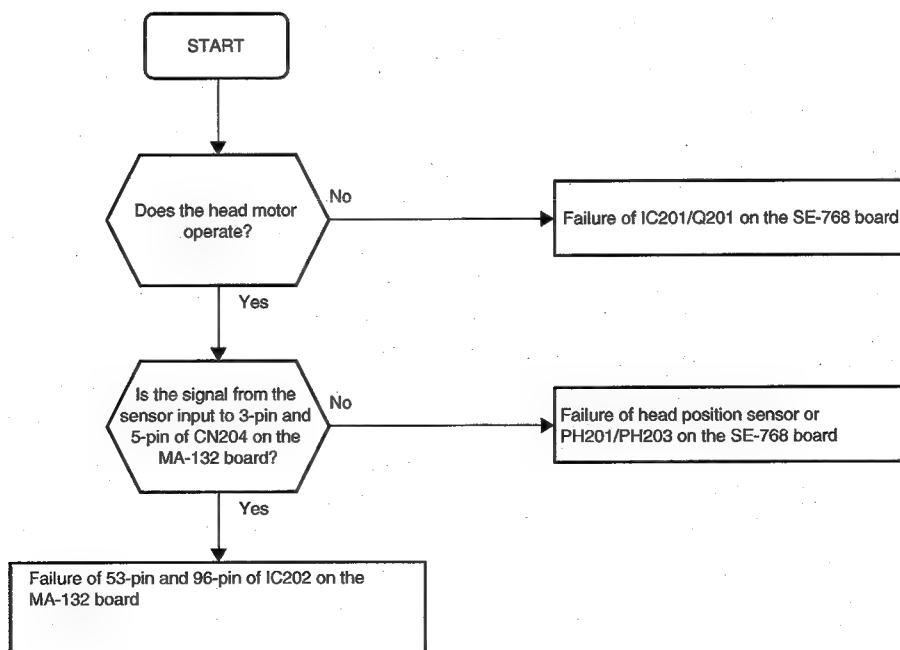
4-2. Print result density is too high or low



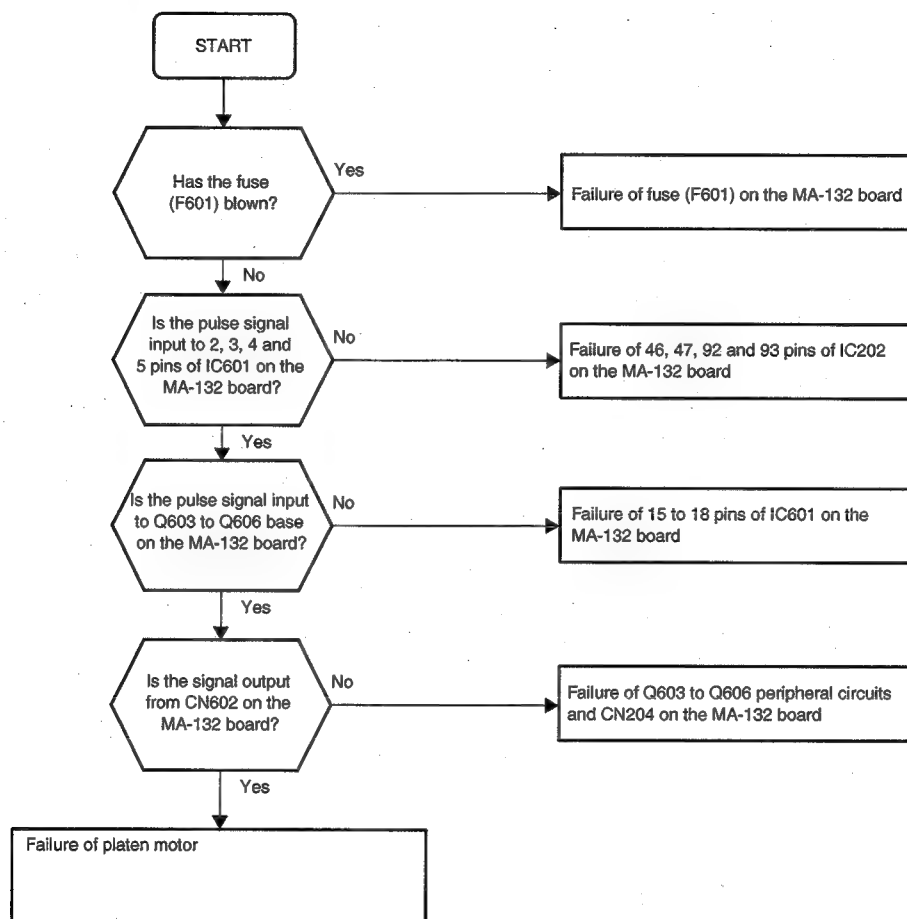
4-3. Trouble of determining presence or absence of paper



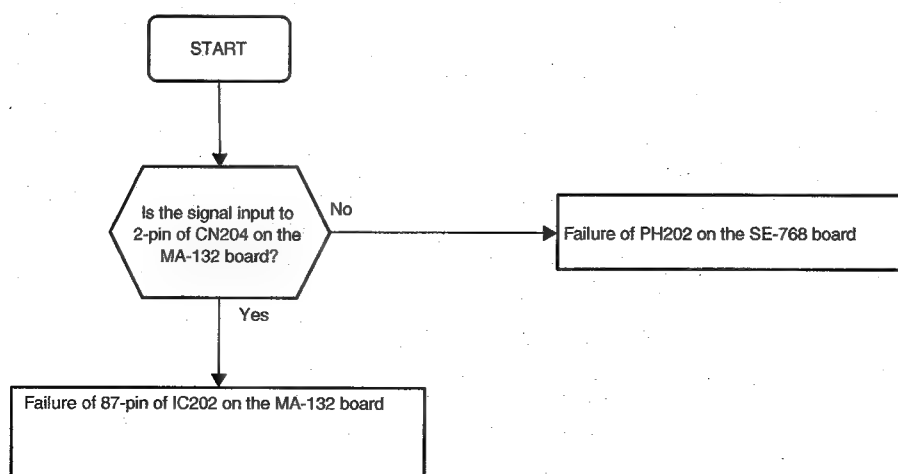
4-4. Thermal head UP/DOWN operation trouble



4-5. Feed operation trouble



4-6. Trouble of determining door open/close



Section 5

Service Mode (Self-diagnosis Function)

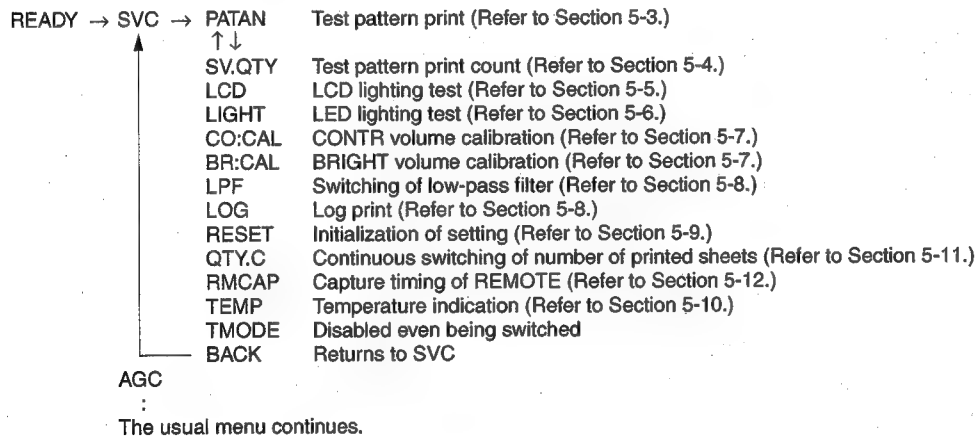
5-1. Startup Procedure

1. Turn on the power while pressing the **COPY** button and **PRINT** button.
2. Check that the backlight starts blinking after approximately 3 seconds, and then release each button.
The service mode starts.

5-2. Service Mode Menu

When the unit is activated in service mode, the "SVC" menu is added one line above the "BEEP" menu. Press the jog dial in this "SVC" menu and rotate it up and down to display the item to be diagnosed, and then press it again. For the details of each item, refer to the following sections.

When the unit is activated in service mode, the time out function does not work. Therefore the unit does not exit the menu mode for approximately 20 seconds without any button operation.



5-3. Test Pattern Printing

Select the test pattern and press the jog dial to start the printing.

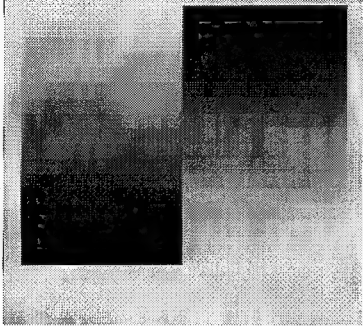
The preset number of test patterns are printed by setting the print count previously in "SV.QTY".

To interrupt the printing, press the **FEED** button or **OPEN** button.

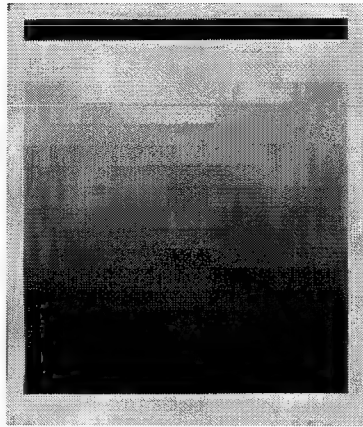
When adjusting the head voltage, perform in the following conditions.

- Set "GAMMA" to "GA-2".

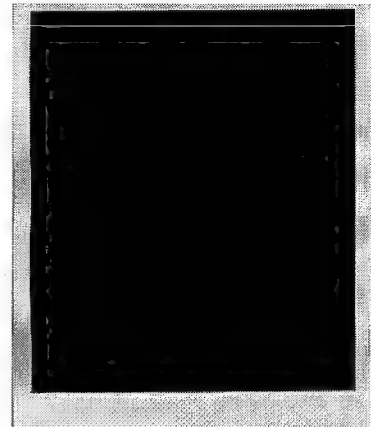
PATAN	PA:FF	All white
	:	Gray
	PA:00	All black
	PA:W/B	White in the left half, black in the right half
	PA:B/W	Black in the left half, white in the right half
	PA:FFh	All white (large size)
	:	Gray (large size)
	PA:00h	All black (large size)
	PA:STP	Stairstep
	PA:CRS	Cross step
	BACK	Returns to PATAN



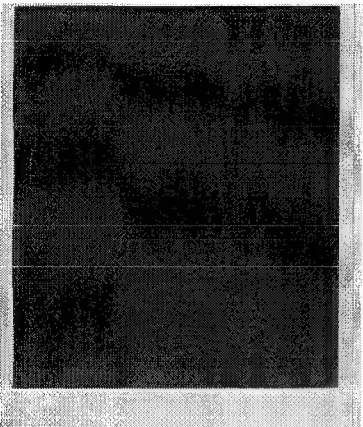
PA-CRS (cross step)



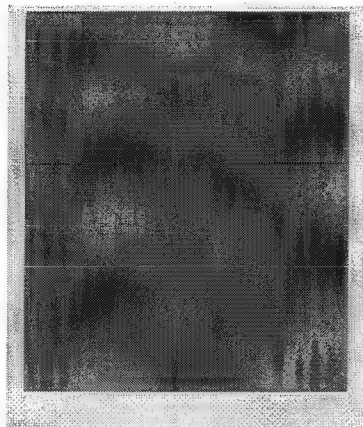
PA-STP (stairstep)



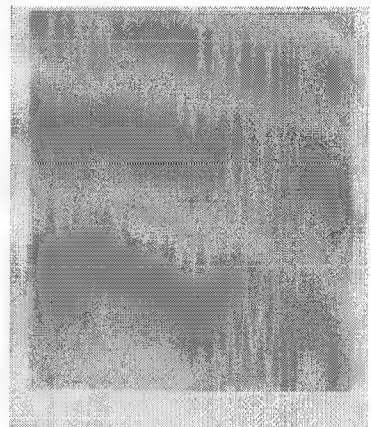
PA:00h



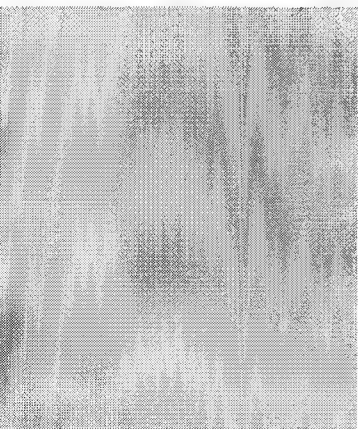
PA:3Fh



PA:7Fh



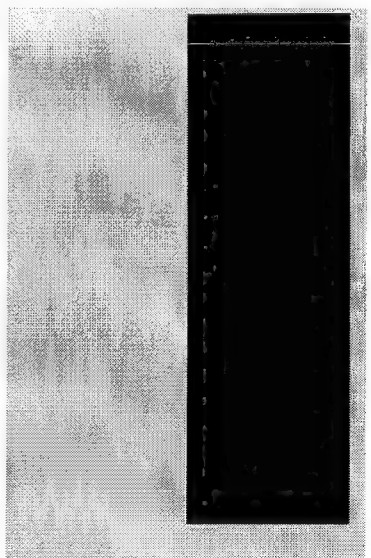
PA:BFh



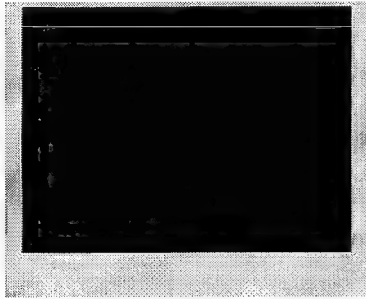
PA:FFh



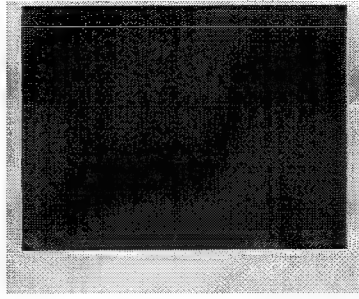
PA:B/W



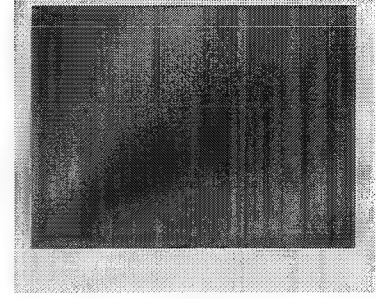
PA:W/B



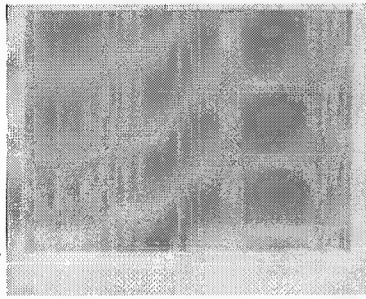
PA:00



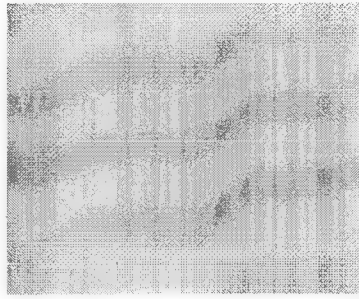
PA:3F



PA:7F



PA:BF



PA:FF

5-4. Test Pattern Print Count

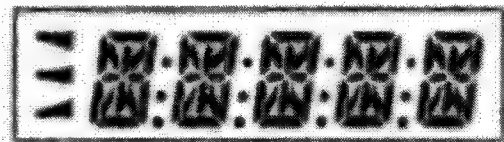
Set the print count of the test pattern printing (PATAN).

SV.QTY	SQ	C	When setting the count to the continuous printing.
S.Q	9		When setting the count to "9".
:			
S.Q:	1		When setting the count to "1".
BACK			Returns to SV.QTY.

5-5. LCD Lighting Check

Check the portion that is not lit by fully lighting the LCD.

LCD (full lighting)	Check if it is lit.
	Returns to LCD when the jog dial is pressed.
BACK	Returns to LCD.



LCD (full lighting)

5-6. LED Lighting Check

Check if the backlight of the LCD is lit.

LIGHT LI:RCV (LCD lights in green.)
 LI:AMB Check if the backlight of the LCD
 lights in amber.
 LI:GRN Check if the backlight of the LCD
 lights in green.
 BACK Returns to LIGHT.

5-7. Front Panel Volume Calibration

Perform the calibration of the CONTR volume and BRIGHT volume. Perform this calibration when replacing the flexible flat cable connecting the KY-572 board or MA-132 board. Each volume is adjustable at three points: left, center and right.

CO:CAL CO:RIG Press the jog dial in the state that the CONTR volume is fully rotated to the right.
 CO:CEN Press the jog dial in the state that the CONTR volume is at the center click position.
 CO:LEF Press the jog dial in the state that the CONTR volume is fully rotated to the left.
 BACK Returns to CO:CAL.
 BR:CAL BR:RIG Press the jog dial in the state that the BRIGHT volume is fully rotated to the right.
 BR:CEN Press the jog dial in the state that the BRIGHT volume is at the center click position.
 BR:LEF Press the jog dial in the state that the BRIGHT volume is fully rotated to the left.
 BACK Returns to BR:CAL.

5-8. Low-Pass Filter

The switching of a low-pass filter circuit in IC501 on the MA-132 board is set. The factory setting is "LP:OFF".

LPF LP:ON When setting a low-pass filter to ON
 LP:OFF When setting a low-pass filter to OFF
 BACK Returns to LPF.

5-9. Log Printing

The print count or error log is printed. Set the printing paper in the paper tray.

LOG LO:OK The log is printed by pressing the jog dial.
 BACK Returns to LOG.

==== LOG ====			
Ver.1.00	Jul 27 2005 19:44:37	①	
T.PRN	200	②	
H.PRN	100	③	
T.ON	10	④	
F.ON	10	⑤	
H.TEMP	30.7	⑥	
1.1501	50	29.4	⑦
2.1302	20	27.9	
3.0000	0	0.0	
4.0000	0	0.0	
5.0000	0	0.0	
6.0000	0	0.0	
7.0000	0	0.0	
8.0000	0	0.0	

- ① Firmware version, date and time it is created
- ② T.PRN: Total print count
- ③ H.PRN: Head total print count
- ④ T.ON: Total power ON time (unit: hour)
- ⑤ F.ON: Total fan ON time (unit: hour)
- ⑥ H.TEMP: Maximum head temperature (unit: °C)
- ⑦ Error log: The eight error logs can be saved.
 1: The latest log, 8: The oldest log
 From the left: Error ID, total print count at the time of error, head temperature at the time of error

Error ID

ID	Factor
1102h	Head cannot be moved from home position to printing position. (During printing)
1103h	Head cannot be moved from home position to printing position. (During feeding)
1105h	Head cannot be moved from home position to printing position. (During cleaning)
1204h	Head cannot be moved from home position to door open position. (During door open)
1301h	Head cannot be moved from printing position to home position. (During mechanical initialization)
1302h	Head cannot be moved from printing position to home position. (During printing)
1303h	Head cannot be moved from printing position to home position. (During feeding)
1305h	Head cannot be moved from printing position to home position. (During cleaning)
1401h	Head cannot be moved from door open position to home position. (During mechanical initialization)
1404h	Head cannot be moved from door open position to home position. (During door open)
1501h	Head cannot be moved from arbitrary position to any of the positions (printing/home/door open). (During mechanical initialization)
2100h	Thermistor is shorted. (Abnormally high temperature)
2200h	Head is not connected. (Abnormally low temperature)
2300h	Preheat time out
2400h	Cool down time out
3100h	Front paper sensor detects "no paper" during printing.
5100h	Print pulse time out
6101h	Prestart time out
6102h	Paper feed before printing time out

5-10. Initialization of Setting

RESET	R:ALL	Resets the unit to the factory setting.
	R:FAN	Resets the fan ON time. This is performed when replacing the fan.
	R.H.PRN	Resets the print count record to "0". This is performed when the head is replaced.
	R:MENU	Initializes the contents that are set in the menu.
	BACK	Returns to RESET.

5-11. Switching of Continuous Setting (C) in Number of Printed Sheets (QTY)

It is switched whether to display "QT.C" for continuous print setting in a "QTY" menu.

The factory setting is "Q.C:OFF".

QTY.C	Q.C:ON	When enabling the selection of continuous printing
	Q.C:OFF	When disabling the selection of continuous printing
	BACK	Returns to QTY.C.

5-12. Switching of REMOTE capture timing

The timing from when a PRINT signal is input to the REMOTE terminal on the front panel until it is captured is switched.

The factor setting is "RM:NOR".

RMCAP	RM:JST	Just mode
	RM:NOR	Normal mode
	BACK	Returns to RMCAP.

5-13. Temperature Indication

The current temperature data is displayed.

Example)

TEMP	H.T:30.5	Head temperature: 30.5 °C
	BACK	Returns to TEMP.

5-14. Switching of Toshiba Mode

It is switched whether to display Toshiba-dedicated view angles "SC:T1" and "SC:T2" in a "SCAN" menu. The contents of setting in a menu are reset during switching.

TMODE	TM:ON	When enabling the selection of a Toshiba-dedicated view angle
	TM:OFF	When disabling the selection of a Toshiba-dedicated view angle
	BACK	Returns to TMODE.

5-15. FEED Operation

When the **FEED** button is pressed in the state that the paper tray is open, the stepping motor is activated and the platen rotates in the paper eject direction.

5-16. Menu Lock

This is the function to prohibit the change of the setting from the menu and disable the switching of the front volume. It is disabled only when the unit is started normally.

Lock/Release Procedure

Turn on the power while pressing the jog dial. After checking that a beep sound is made after approximately 3 seconds, release the button. When the lock is activated, "LOCK" is displayed on the LCD and when the lock is released, "UNLOK" is displayed on the LCD. If the jog dial or the front volume is operated when the lock is activated, a "beep" alarm sound is made and "LOCK" is displayed on the LCD.

Section 6

Spare Parts

6-1. Notes on Repair Parts

1. Safety Related Components Warning

WARNING

Components marked \triangle are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some repair parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.

Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with "o" at SP (Supply Code) column of the spare parts list may not be stocked. Therefore, the delivery date will be delayed.

4. Harness

Harnesses with no part number are not registered as spare parts.

In need of repair, get components shown in the list and repair using them.

5. Symbol

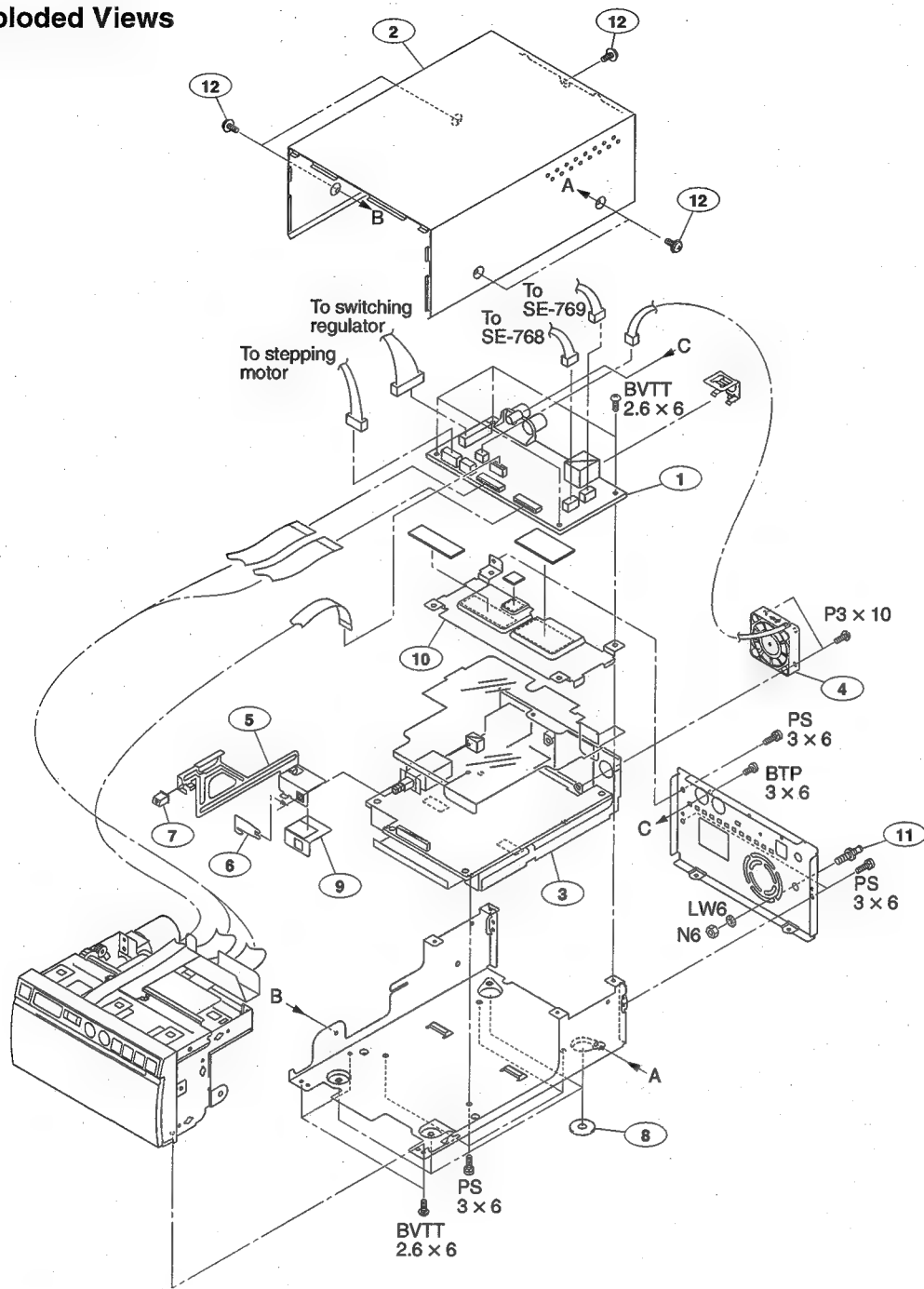


Protective earth (ground)

To identify any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.

Cover and Chassis Block

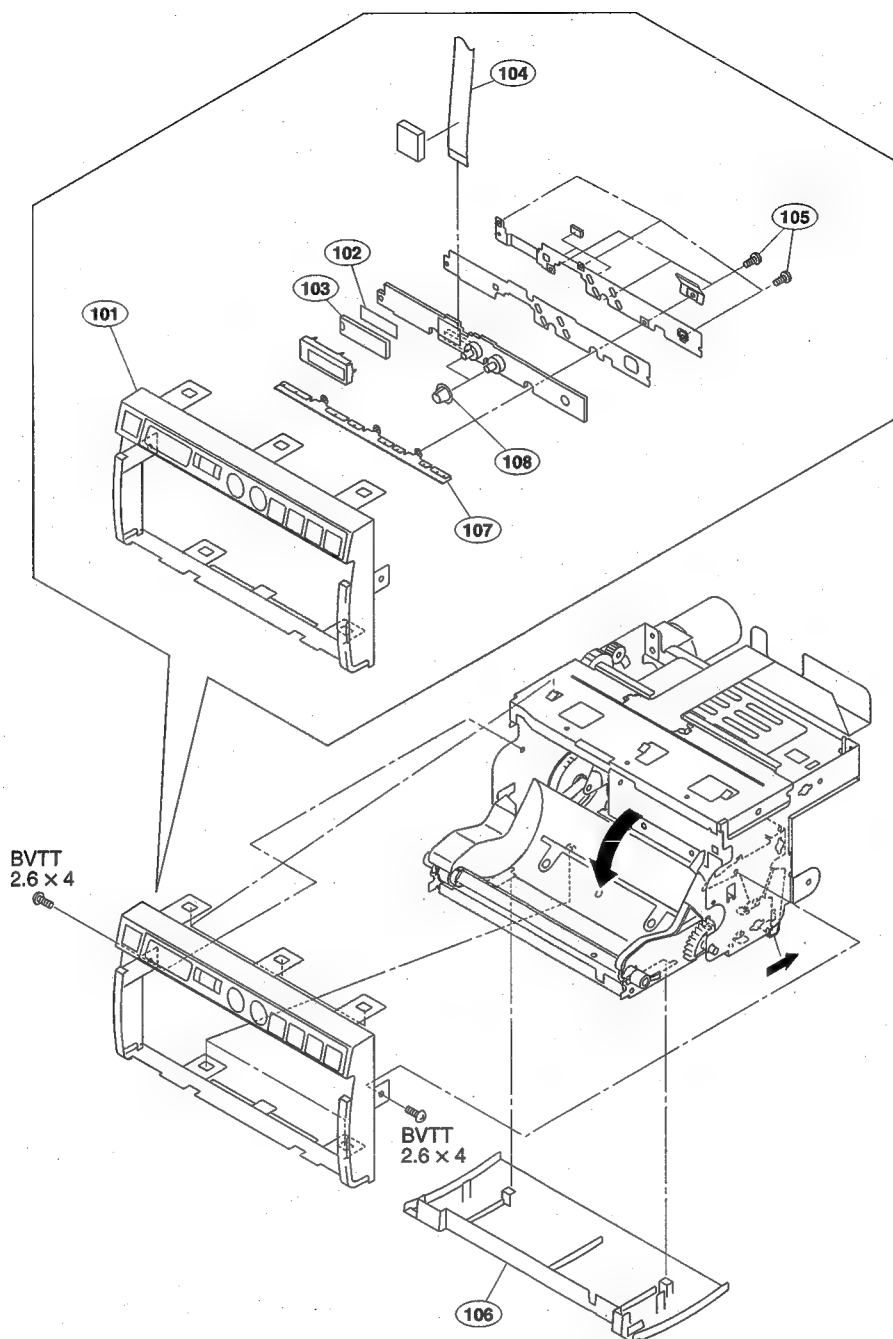
6-2. Exploded Views



No.	Part No.	SP Description
1	A-1078-887-A	■ MOUNTED CIRCUIT BOARD, MA-132(A)
2	X-3698-532-3	■ SUB ASSY, TOP COVER
3	▲ 1-468-934-11	■ REGULATOR, SWITCHING
4	1-787-426-11	■ FAN, DC (40 SQUARE)
5	3-857-727-02	■ ROD, POWER SW
6	3-857-731-01	■ STOPPER, SW ROD
7	3-857-732-01	■ BUTTON, POWER
8	3-857-734-01	■ FOOT
9	3-857-736-01	■ SHIELD, SW
10	3-903-670-01	■ PLATE, SHIELD(ANALOG)
11	3-990-273-01	■ TERMINAL, P.E. (for UC2/CED/SYN)

No.	Part No.	SP Description
12	4-886-821-11	■ SCREW, M3X6 CASE (SILVER)
	7-623-425-07	■ WASHER LW 6 (TYPE B) (for UC2/CED/SYN)
	7-682-149-04	■ SCREW +P 3X10 (EP-FE/CU, NI, CR)
	7-682-647-09	■ SCREW +PS 3X6 (EP-FE/ZNBK/CM2)
	7-684-026-04	■ NUT M6 TYPE2 (EP-FE/ZN/CM2) (for UC2/CED/SYN)
	7-685-546-14	■ SCREW +BTP 3X8
	7-685-862-09	■ SCREW, +BVTT 2.6X6 (EP-FE/ZNBK/CM2)

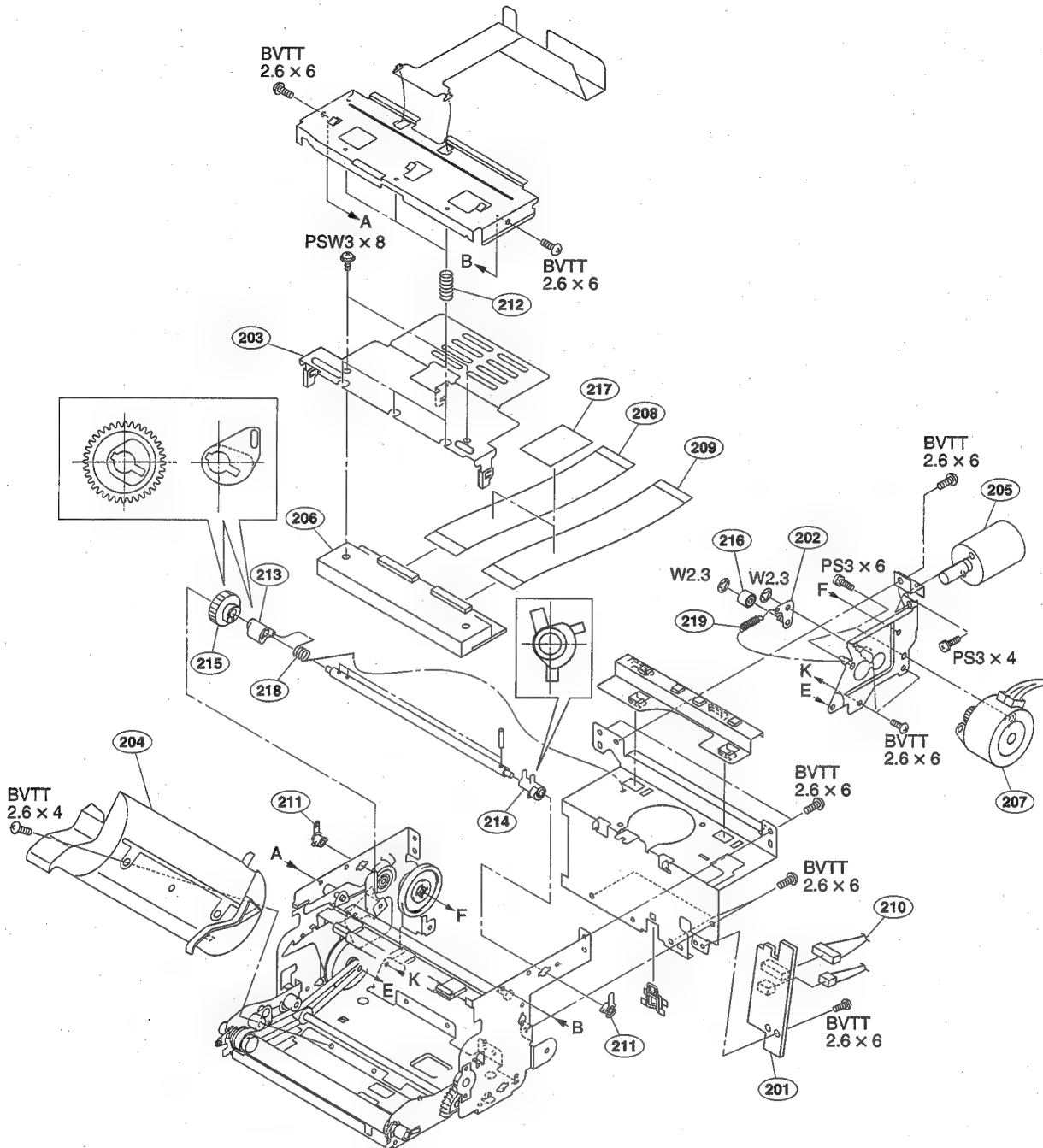
Front Panel Block



No.	Part No.	SP Description
101	X-3608-993-2	s FRONT PANEL ASSY(A)
102	1-780-223-11	s CONDUCTIVE BOARD, CONNECTION
103	1-805-786-11	s DISPLAY PANEL, LIQUID CRYSTAL
104	1-831-138-11	s CABLE, FLEXIBLE FLAT (24CORE)
105	3-713-791-45	s TAPPING SCREW M1.7
106	3-857-733-11	s PANEL, DOOR
107	3-863-111-02	s CUTTER
108	3-863-112-01	s KNOB, ROTARY

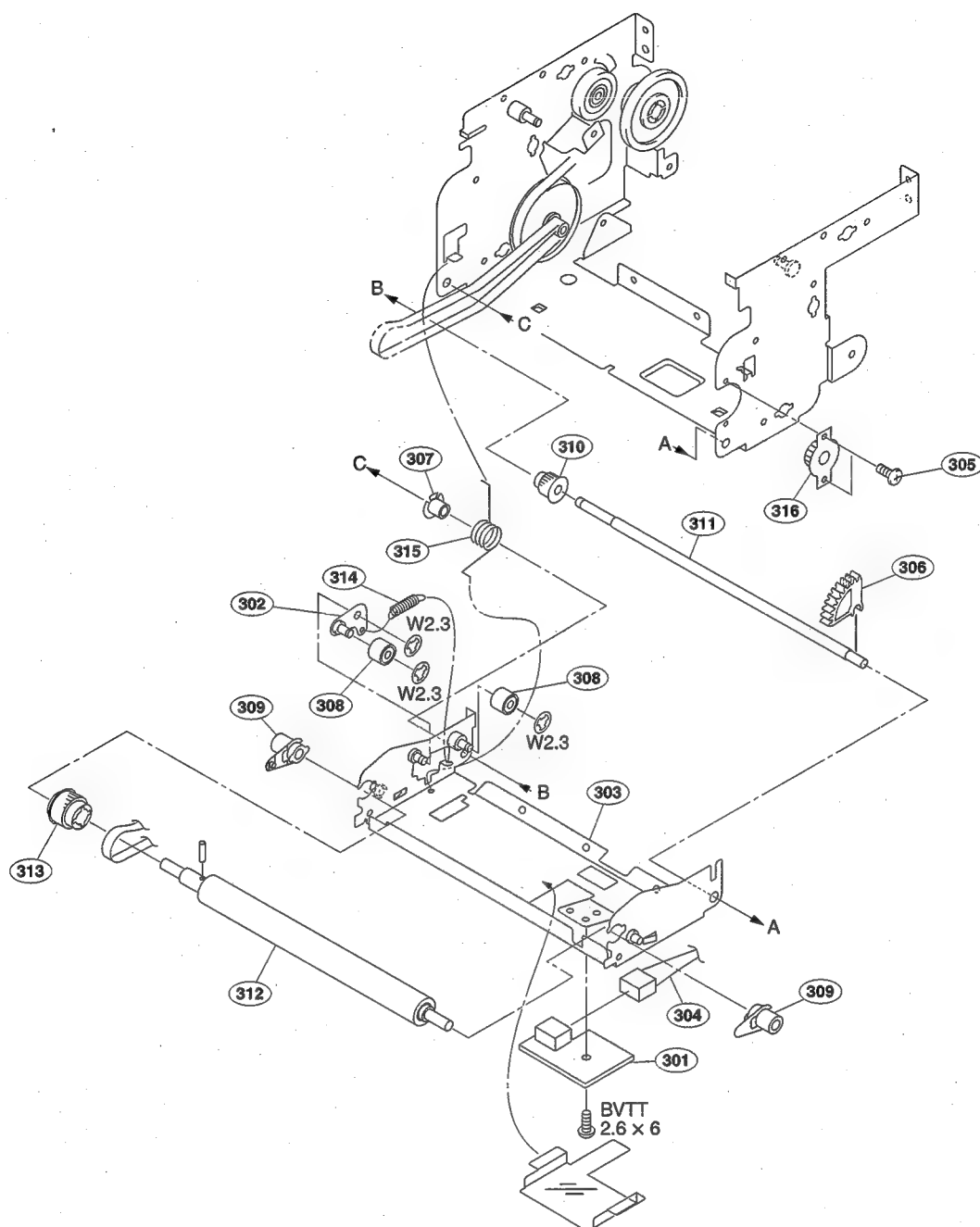
7-685-860-09 s SCREW, +BVTT 2.6X4 (EP-FE/ZNBK/CM2)

Mecha Deck Block 1



No.	Part No.	SP Description
201	A-1078-892-A	s MOUNTED CIRCUIT BOARD, SE-768
202	X-3608-983-1	s SUB ASSY,TENSION ARM
203	X-3608-987-3	s ASSY,HEAT SINK
204	X-3608-991-5	s ASSY, PAPER HOLDER
205	X-3704-803-1	s SUB ASSY,DC MOTOR (RP)
206	1-479-084-11	s HEAD, THERMAL (LVE6426SS)
207	1-787-289-11	s MOTOR, STEPPING
208	1-830-214-21	s CABLE, FLEXIBLE FLAT (26 CORE)
209	1-830-215-21	s CABLE, FLEXIBLE FLAT (28 CORE)
210	1-963-347-12	s HARNESS, MA-SE768
211	3-857-741-01	s BEARING
212	3-857-749-01	s SPRING,HEAD(10N)

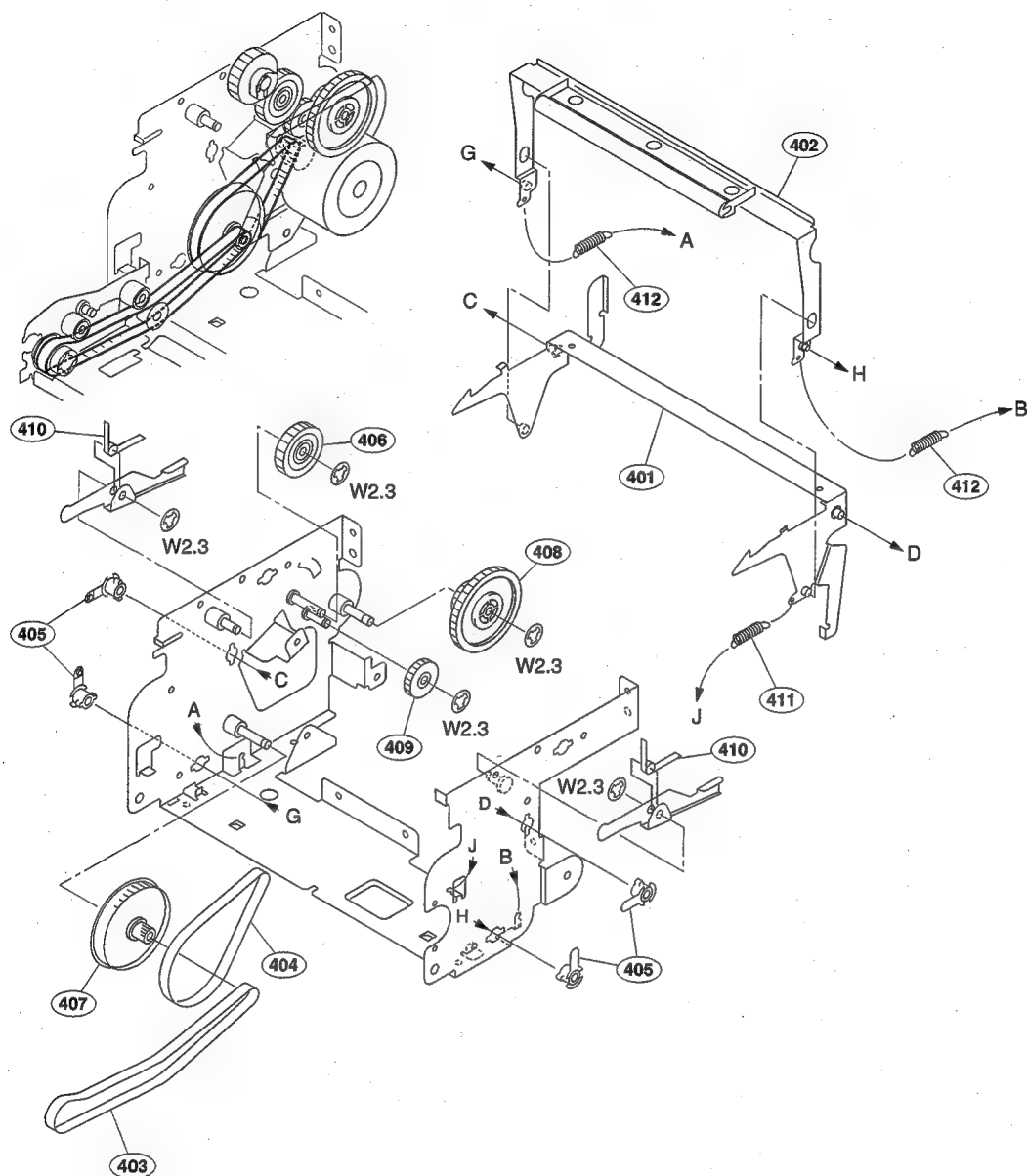
No.	Part No.	SP Description
213	3-857-753-03	s CAM(L)
214	3-857-754-03	s CAM(R)
215	3-857-755-03	s GEAR,CAM
216	3-857-757-01	s ROLLER,TENSION
217	3-857-783-04	s SUPPORT (FFC)
218	3-986-503-01	s SPRING, TORSION
219	3-986-932-01	s SPRING,MOTOR TENSION(1N)S
	3-669-596-00	s WASHER,2.3 (PLA)
	7-682-645-04	s ISO SCREW+PS3X4 CR-N (13)
	7-682-647-09	s SCREW +PS 3X6 (EP-FE/ZNBK/CM2)
	7-682-948-01	s SCREW +PSW 3X8



No.	Part No.	SP Description
301	A-1078-894-A	s MOUNTED CIRCUIT BOARD, SE-769
302	X-3608-983-1	s SUB ASSY,TENSION ARM
303	X-3608-984-1	s SUB ASSY,MD DOOR
304	1-963-348-12	s HARNESS, MA-SE769
305	3-080-203-31	s SCREW (M2X4), LOCK ACE, P2
306	3-857-743-01	s GEAR,DUMPER
307	3-857-747-01	s SPACER,FULCRUM
308	3-857-757-01	s ROLLER,TENSION
309	3-857-758-01	s BEARING,PLATEN
310	3-857-759-02	s PULLEY,FULCRUM

No.	Part No.	SP Description
311	3-857-760-01	s SHAFT,FULCRUM
312	3-857-762-01	s PLATEN
313	3-857-763-03	s PULLEY,PLATEN
314	3-857-770-01	s SPRING,DOOR EXTENSION (4N)
315	3-863-631-01	s SPRING,DOOR OPEN (C)
316	3-973-975-31	s DAMPER, OIL
	3-669-596-00	s WASHER,2.3 (PLA)
	7-685-862-09	s SCREW,+BVT 2.6X6 (EP-FE/ZNBK/CM2)

Mecha Deck Block 3



No.	Part No.	SP Description
401	X-3608-985-1	s SUB ASSY, DOOR LOCK
402	X-3608-986-2	s SUB ASSY, PINCH ARM
403	3-854-457-01	s TIMING BELT (220TN10-5.0T)
404	3-857-739-01	s TIMING BELT (140TN10-4.0T)
405	3-857-741-01	s BEARING
406	3-857-744-01	s GEAR, IDLER
407	3-857-746-02	s PULLEY, IDLER
408	3-857-750-03	s WORM WHEEL
409	3-857-751-03	s GEAR, REDUCTION(S)
410	3-863-629-01	s LEAF SPRING (HEAD)

No.	Part No.	SP Description
411	3-986-931-01	s SPRING, LOCK (1.3N)S
412	3-990-805-01	s SPRING, PINCH (7.5N)
	3-669-596-00	s WASHER, 2.3 (PLA)
	7-685-860-09	s SCREW, +BVTT 2.6X4 (EP-FE/ZNBK/CM2)

6-3. Electrical Parts List

KY-572(A)G BOARD

Ref. No. or Q'ty	Part No.	SP Description
C101	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C102	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C103	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C104	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C105	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C106	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C107	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C108	1-165-128-11	s CAPACITOR CERAMIC 0.22MF/16V F
C109	1-165-128-11	s CAPACITOR CERAMIC 0.22MF/16V F
C110	1-165-128-11	s CAPACITOR CERAMIC 0.22MF/16V F
CN101	1-817-368-61	s CONNECTOR, FFC/FPC (ZIP) 24P
D101	6-501-137-01	s DIODE CL-375TD/SYG-D-TS
EN101	1-477-089-31	s ENCODER (ROTARY)
IC101	8-759-465-98	s IC BU9728AKV-E2
Q102	6-550-988-01	s TRANSISTOR CPT-184S-C-TS-BCD
R101	1-216-864-11	s CONDUCTOR, CHIP (1608)
R105	1-216-853-11	s RESISTOR,CHIP 470K 1/16W(1608)
R106	1-216-864-11	s CONDUCTOR, CHIP (1608)
R107	1-216-864-11	s CONDUCTOR, CHIP (1608)
R108	1-216-864-11	s CONDUCTOR, CHIP (1608)
RV101	1-227-680-12	s RESISTOR, VAR, CARBON 10K
RV102	1-227-680-12	s RESISTOR, VAR, CARBON 10K
S101	1-771-884-31	s SWITCH, TACTILE
S102	1-771-884-31	s SWITCH, TACTILE
S103	1-771-884-31	s SWITCH, TACTILE
S104	1-771-884-31	s SWITCH, TACTILE
VDR101	1-801-924-21	s VARISTOR, CHIP (1608)
VDR102	1-801-924-21	s VARISTOR, CHIP (1608)
VDR103	1-801-924-21	s VARISTOR, CHIP (1608)

MA-132(A)G BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1159-430-A	s MOUNTED CIRCUIT BOARD, MA-132(A)G
BZ201	1-544-886-11	s BUZZER, PIEZOELECTRIC
C1	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C101	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C102	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C103	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C104	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C105	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C106	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C107	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C108	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C110	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C111	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C112	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C113	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C114	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C115	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C116	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C117	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C118	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C120	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C121	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C123	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C124	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C127	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C128	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C129	1-125-837-91	s CAPACITOR,CHIP CERAMIC1MF/6.3V
C130	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C132	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C133	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C134	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C135	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C136	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C137	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C138	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C139	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C140	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C141	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C142	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C143	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C144	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C145	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C147	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C149	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C150	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C152	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C153	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C155	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C156	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C157	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C158	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C159	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C160	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C161	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C162	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C163	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C164	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF

(MA-132(A)G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C166	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C167	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C168	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C169	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C170	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C171	1-164-847-11	s CAPACITOR,CHIP CERAMIC 7PF/50V
C172	1-164-847-11	s CAPACITOR,CHIP CERAMIC 7PF/50V
C173	1-164-844-11	s CAPACITOR,CHIP CERAMIC 4PF/50V
C175	1-125-889-11	s CAPACITOR, CERAMIC 2.2MF
C176	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C177	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C178	1-164-844-11	s CAPACITOR,CHIP CERAMIC 4PF/50V
C179	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C180	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C181	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C182	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C183	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C184	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C186	1-125-837-91	s CAPACITOR,CHIP CERAMIC1MF/6.3V
C187	1-165-872-21	s CAPACITOR,SOLID ELECT 47MF
C188	1-165-872-21	s CAPACITOR,SOLID ELECT 47MF
C201	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C202	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C203	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C204	1-164-943-11	s CAPACITOR,CHIP CERAMIC 0.01MF
C205	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C206	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C207	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C208	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C209	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C210	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C211	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C212	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C213	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C214	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C215	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C216	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C217	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C218	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C219	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C220	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C223	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C224	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C225	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C226	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C227	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C231	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C232	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C233	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C235	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C237	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C238	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C239	1-125-891-11	s CAPACITOR CERAMIC 0.47MF/10V
C240	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C241	1-125-891-11	s CAPACITOR CERAMIC 0.47MF/10V
C245	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C246	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C247	1-125-837-91	s CAPACITOR,CHIP CERAMIC1MF/6.3V
C248	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF

(MA-132(A)G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
C249	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C250	1-165-870-21	s CAPACITOR, ELECT 100MF (6.3X6)
C251	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C252	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C253	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C254	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C255	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C256	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C257	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C258	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C259	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C260	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C261	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C262	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C263	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C264	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C265	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C266	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C267	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C268	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C269	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C270	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C271	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C272	1-125-837-91	s CAPACITOR,CHIP CERAMIC1MF/6.3V
C273	1-165-872-21	s CAPACITOR,SOLID ELECT 47MF
C274	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C275	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C276	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C277	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C278	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C279	1-164-858-11	s CAPACITOR,CERAMIC 22PF/50V
C280	1-164-858-11	s CAPACITOR,CERAMIC 22PF/50V
C281	1-164-858-11	s CAPACITOR,CERAMIC 22PF/50V
C282	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C283	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C284	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C285	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C286	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C287	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C288	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C289	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C290	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C291	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C292	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C293	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C294	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C295	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C296	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C297	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C298	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C299	1-164-866-11	s CAPACITOR,CHIP CERAMIC 47PF/50
C300	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C301	1-165-870-21	s CAPACITOR, ELECT 100MF (6.3X6)
C302	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C303	1-127-715-11	s CAPACITOR,CERAMIC 0.22MF B1608
C304	1-127-715-11	s CAPACITOR,CERAMIC 0.22MF B1608
C305	1-127-715-11	s CAPACITOR,CERAMIC 0.22MF B1608
C308	1-115-339-11	s CAPACITOR,CERAMIC 0.1MF/50V
C309	1-100-276-21	s CAP, ELECT 22MF (5.0X6.5)

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Ref. No. or Q'ty	Part No.	SP Description
C310	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C311	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C312	1-165-870-21	s CAPACITOR, ELECT 100MF(6.3X6)
C314	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C315	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C316	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C317	1-165-870-21	s CAPACITOR, ELECT 100MF(6.3X6)
C318	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C319	1-100-276-21	s CAP, ELECT 22MF (5.0X6.5)
C320	1-165-989-11	s CAPACITOR, CERAMIC 10MF (2012)
C321	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C322	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C323	1-100-165-21	s CAP, ELECT 47MF (8X7)
C324	1-127-715-11	s CAPACITOR,CERAMIC 0.22MF B1608
C325	1-127-715-11	s CAPACITOR,CERAMIC 0.22MF B1608
C421	1-126-394-11	s CAPACITOR,ELECT 10MF/16V(CHIP)
C422	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C501	1-126-396-11	s CAPACITOR,ELECT 47MF/16V(CHIP)
C502	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C503	1-126-390-11	s CAPACITOR ELECT 22MF/6.3V(105)
C504	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
C505	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C506	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C507	1-126-390-11	s CAPACITOR ELECT 22MF/6.3V(105)
C508	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C509	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C510	1-100-670-11	s CAPACITOR, CHIP CERAMIC 4.7MF
C511	1-165-870-21	s CAPACITOR, ELECT 100MF(6.3X6)
C512	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C513	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C514	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C515	1-164-935-11	s CAPACITOR,CHIP CERAMIC 470PF
C516	1-162-915-11	s CAPACITOR,CERAMIC 10PF/50V CH
C517	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C518	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C519	1-126-391-11	s CAPACITOR ELECT 47MF/6.3V(105)
C520	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C521	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C522	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C523	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C524	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C525	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C526	1-126-391-11	s CAPACITOR ELECT 47MF/6.3V(105)
C527	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C528	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C529	1-165-871-11	s CAPACITOR,ELECT 22MF
C530	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C531	1-165-871-11	s CAPACITOR,ELECT 22MF
C532	1-104-607-11	s CAPACITOR ELECT 47MF/16V(105C)
C533	1-104-607-11	s CAPACITOR ELECT 47MF/16V(105C)
C534	1-104-607-11	s CAPACITOR ELECT 47MF/16V(105C)
C535	1-104-607-11	s CAPACITOR ELECT 47MF/16V(105C)
C536	1-104-607-11	s CAPACITOR ELECT 47MF/16V(105C)
C537	1-100-352-91	s CAP, CHIP CERAMIC 1MF B (1608)
C538	1-162-968-11	s CAPACITOR,CERAMIC 4700PF/50V B
C539	1-104-607-11	s CAPACITOR ELECT 47MF/16V(105C)
C540	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C541	1-109-994-11	s CAPACITOR,CHIP CERAMIC 2.2MF B
C542	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B

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Ref. No. or Q'ty	Part No.	SP Description
C543	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C544	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C546	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C549	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C551	1-126-391-11	s CAPACITOR ELECT 47MF/6.3V(105)
C552	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C553	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C554	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C555	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C556	1-162-918-11	s CAPACITOR,CERAMIC 18PF/50V CH
C557	1-162-918-11	s CAPACITOR,CERAMIC 18PF/50V CH
C601	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C727	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C2003	1-165-128-11	s CAPACITOR CERAMIC 0.22MF/16V F
C2004	1-165-128-11	s CAPACITOR CERAMIC 0.22MF/16V F
C2005	1-107-826-11	s CAPACITOR,CHIP CERAMIC 0.1MF
C2006	1-125-777-11	s CAPACITOR CERAMIC 0.1MF/10V
CN101	1-815-429-11	s JACK (SMD)
CN102	1-784-254-11	s CONNECTOR 10P
CN103	1-794-962-11	s CONNECTOR, SQUARE TYPE 5P
CN201	1-779-336-61	s CONNECTOR, FFC/FPC 24P
CN204	1-766-376-11	o PIN, CONNECTOR (1.5MM) (SMD) 9P
CN206	1-784-877-11	s CONNECTOR,FFC(LIF(NON-ZIF))28P
CN302	1-784-876-21	s CONNECTOR,FFC(LIF(NON-ZIF))26P
CN401	1-779-328-61	s CONNECTOR, FFC/FPC 8P
CN501	1-691-431-11	s CONNECTOR ASSY, BNC
D101	8-719-820-41	s DIODE 1SS302
D102	8-719-820-41	s DIODE 1SS302
D103	8-719-820-41	s DIODE 1SS302
D201	8-719-421-67	s DIODE MA132WK
D202	8-719-820-41	s DIODE 1SS302
D204	8-719-820-41	s DIODE 1SS302
D205	8-719-820-41	s DIODE 1SS302
D206	8-719-820-41	s DIODE 1SS302
D207	8-719-820-41	s DIODE 1SS302
D208	8-719-820-41	s DIODE 1SS302
D209	8-719-820-41	s DIODE 1SS302
D210	8-719-820-41	s DIODE 1SS302
D211	8-719-820-41	s DIODE 1SS302
D212	8-719-820-41	s DIODE 1SS302
D302	8-719-066-98	s DIODE RB051L-40
D401	8-719-421-67	s DIODE MA132WK
D501	8-719-106-43	s DIODE RD9.1M-B1
D502	8-719-106-43	s DIODE RD9.1M-B1
D503	8-719-106-43	s DIODE RD9.1M-B1
D504	8-719-106-43	s DIODE RD9.1M-B1
D505	8-719-820-41	s DIODE 1SS302
D601	8-719-210-33	s DIODE EC10DS2 (RECTI)
D602	8-719-104-34	s DIODE 1S2836
D603	8-719-104-34	s DIODE 1S2836
D604	8-719-104-34	s DIODE 1S2836
D605	8-719-104-34	s DIODE 1S2836
D606	8-719-104-34	s DIODE 1S2836
D607	8-719-104-34	s DIODE 1S2836
F601	Δ 1-576-212-21	s FUSE CHIP 1.25A (6125)
FB101	1-414-445-11	s FERRITE, EMI (SMD)
FB102	1-414-445-11	s FERRITE, EMI (SMD)

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Ref. No. or Q'ty	Part No.	SP Description
FB103	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB104	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB105	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB201	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB202	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB203	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB204	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB205	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB206	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB207	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB208	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB209	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB210	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB211	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB212	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB213	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB214	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB215	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB216	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB217	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB218	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB220	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB221	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB222	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB223	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB224	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB225	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB226	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB227	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB228	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB252	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB253	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB254	1-414-813-11 s	MICRO INDUCTOR(CHIP TYPE) 2012
FB255	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB256	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB257	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB501	1-414-760-21 s	INDUCTOR, MICRO (CHIP TYPE)
FB502	1-216-864-11 s	CONDUCTOR, CHIP (1608)
FB503	1-216-864-11 s	CONDUCTOR, CHIP (1608)
IC101	6-708-493-01 s	IC HY57V281620ETP-HDR
IC102	6-708-493-01 s	IC HY57V281620ETP-HDR
IC105	6-702-688-01 s	IC M24C64-WMN6T(B)
IC106	8-759-649-45 o	IC SN74AHC1G04DCKR
IC107	6-705-771-01 s	IC SN74LVC1G32DCKR
IC109	6-706-712-01 s	IC BD45401G
IC110	6-703-671-01 o	IC BR9040F-WB2
IC201	6-705-868-01 s	IC XC2173S01XMR
IC203	6-705-771-01 s	IC SN74LVC1G32DCKR
IC204	8-759-549-23 s	IC SN74LV74APWR
IC205	8-759-277-63 s	IC TC7W14FU (TE12R)
IC206	8-759-337-40 s	IC NJM2904V(Te2)
IC207	8-759-669-48 s	IC LM324PWR-12
IC208	8-759-564-49 s	IC TC7W53FU-TE12R
IC209	6-706-704-01 s	IC TLV3402IDGKR
IC301	6-700-394-01 s	IC BA25BC0FP-TE2
IC302	6-706-191-01 s	IC BD9701FP-E2
IC303	6-700-792-01 s	IC NJM78M09DL1A(Te1)
IC304	6-705-879-01 s	IC XC62EP1602MR
IC305	8-759-234-08 s	IC TA78L05F

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Ref. No. or Q'ty	Part No.	SP Description
IC501	8-753-218-19 s	IC CXA2169Q-T4
IC502	8-752-371-18 s	IC CXD2302Q
IC503	6-803-271-01 s	IC SN74LVC1G04DCKR
IC504	8-759-337-40 s	IC NJM2904V(Te2)
IC509	8-759-287-50 s	IC CXD8932Q
IC510	6-705-771-01 s	IC SN74LVC1G32DCKR
IC511	6-705-771-01 s	IC SN74LVC1G32DCKR
IC512	8-759-297-58 s	IC DS1000Z-50
IC513	8-759-649-33 s	IC SN74AHC1G08DCKR
IC601	8-759-549-20 s	IC SN74LV541APWR
JC103	1-216-864-11 s	CONDUCTOR, CHIP (1608)
JC201	1-216-864-11 s	CONDUCTOR, CHIP (1608)
L103	1-410-381-11 s	INDUCTOR,CHIP 10UH (3225)
L104	1-410-381-11 s	INDUCTOR,CHIP 10UH (3225)
L301	1-424-653-11 s	COIL,CHOKE 10UH
L305	1-469-828-11 s	INDUCTOR 100UH
L306	1-424-653-11 s	COIL,CHOKE 10UH
L307	1-424-653-11 s	COIL,CHOKE 10UH
Q101	8-729-901-00 s	TRANSISTOR DTC124EK
Q102	8-729-028-73 s	TRANSISTOR DTA114EUA-T106
Q103	8-729-120-28 s	TRANSISTOR 2SC1623-L5L6
Q104	8-729-901-00 s	TRANSISTOR DTC124EK
Q203	8-729-928-81 s	TRANSISTOR DTC144EE
Q204	8-729-928-90 s	TRANSISTOR DTC114EE
Q205	8-729-928-90 s	TRANSISTOR DTC114EE
Q206	6-550-139-01 s	TRANSISTOR IMZ1A-T108
Q208	8-729-928-81 s	TRANSISTOR DTC144EE
Q210	8-729-928-81 s	TRANSISTOR DTC144EE
Q211	8-729-928-81 s	TRANSISTOR DTC144EE
Q301	6-550-139-01 s	TRANSISTOR IMZ1A-T108
Q302	8-729-053-92 s	TRANSISTOR 2SB1424-T100-QR
Q401	8-729-928-90 s	TRANSISTOR DTC114EE
Q402	8-729-230-27 s	TRANSISTOR 2SA1213Y-TE12L
Q501	8-729-928-90 s	TRANSISTOR DTC114EE
Q502	8-729-927-99 s	TRANSISTOR 2SC4617R
Q503	8-729-901-00 s	TRANSISTOR DTC124EK
Q504	8-729-901-00 s	TRANSISTOR DTC124EK
Q601	8-729-140-75 s	TRANSISTOR 2SD999-CLOCK
Q602	8-729-017-80 s	TRANSISTOR 2SD992-Z
Q603	8-729-017-80 s	TRANSISTOR 2SD992-Z
Q604	8-729-017-80 s	TRANSISTOR 2SD992-Z
Q605	8-729-017-80 s	TRANSISTOR 2SD992-Z
Q606	8-729-017-80 s	TRANSISTOR 2SD992-Z
Q607	8-729-140-75 s	TRANSISTOR 2SD999-CLOCK
Q608	8-729-017-80 s	TRANSISTOR 2SD992-Z
R1	1-218-863-11 s	RESISTOR,CHIP 4.7K 1/10W(1608)
R2	1-218-847-11 s	RESISTOR, CHIP 1K 1/10W (1608)
R3	1-218-855-11 s	RESISTOR,CHIP 2.2K 1/10W(1608)
R4	1-218-859-11 s	RESISTOR,CHIP 3.3K 1/10W(1608)
R5	1-218-863-11 s	RESISTOR,CHIP 4.7K 1/10W(1608)
R6	1-218-855-11 s	RESISTOR,CHIP 2.2K 1/10W(1608)
R7	1-218-859-11 s	RESISTOR,CHIP 3.3K 1/10W(1608)
R8	1-218-847-11 s	RESISTOR, CHIP 1K 1/10W (1608)
R101	1-218-965-11 s	RESISTOR, CHIP 10K 1/16W
R102	1-218-965-11 s	RESISTOR, CHIP 10K 1/16W

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Ref. No. or Q'ty	Part No.	SP Description
R103	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R104	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R105	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R106	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R107	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R108	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R109	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R110	1-216-809-11	s RESISTOR, CHIP 100 1/10W 1608
R111	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R112	1-216-829-11	s RESISTOR, CHIP 4.7K 1/10W(1608)
R113	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R114	1-216-829-11	s RESISTOR, CHIP 4.7K 1/10W(1608)
R115	1-220-880-11	s RESISTOR, CHIP 27 (1005)
R116	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R118	1-220-880-11	s RESISTOR, CHIP 27 (1005)
R121	1-218-955-11	s RESISTOR, CHIP 1.5K
R125	1-216-864-11	s CONDUCTOR, CHIP (1608)
R126	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R127	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R128	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R129	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R130	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R131	1-218-953-11	s RESISTOR, CHIP 1K 1/16W
R132	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R133	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R134	1-218-953-11	s RESISTOR, CHIP 1K 1/16W
R135	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R136	1-208-688-11	s RESISTOR, CHIP 1.6K1/16W 1005
R137	1-208-688-11	s RESISTOR, CHIP 1.6K1/16W 1005
R138	1-208-688-11	s RESISTOR, CHIP 1.6K1/16W 1005
R139	1-208-697-11	s RESISTOR CHIP 3.9K 1/16W(1005)
R140	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R143	1-218-989-11	s RESISTOR, CHIP 1M 1/16W (1005)
R144	1-218-945-11	s RESISTOR, CHIP 220 1/16W(1005)
R145	1-218-969-11	s RESISTOR, CHIP 22K 1/16W (1005)
R146	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R147	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R148	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R149	1-216-809-11	s RESISTOR, CHIP 100 1/10W 1608
R150	1-218-953-11	s RESISTOR, CHIP 1K 1/16W
R152	1-216-864-11	s CONDUCTOR, CHIP (1608)
R153	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R154	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R155	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R156	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R157	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R158	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R159	1-216-845-11	s RESISTOR, CHIP 100K 1/10W(1608)
R161	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R162	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R163	1-216-849-11	s RESISTOR, CHIP 220K 1/16W 1608
R164	1-218-875-11	s RESISTOR, CHIP 15K 1/10W (1608)
R165	1-218-875-11	s RESISTOR, CHIP 15K 1/10W (1608)
R166	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R168	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R169	1-208-687-11	s RESISTOR CHIP 1.5K 1/16W (1005)
R170	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R172	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R173	1-218-941-11	s RESISTOR, CHIP 100 1/16W (1005)

(MA-132(A)G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R174	1-218-941-11	s RESISTOR, CHIP 100 1/16W (1005)
R177	1-220-174-11	s RESISTOR, CHIP 200 1/16W(1005)
R199	1-216-829-11	s RESISTOR, CHIP 4.7K 1/10W(1608)
R201	1-218-955-11	s RESISTOR, CHIP 1.5K
R202	1-218-955-11	s RESISTOR, CHIP 1.5K
R203	1-218-894-11	s RESISTOR, CHIP 91K 1/10W (1608)
R204	1-218-856-11	s RESISTOR, CHIP 2.4K 1/10W(1608)
R205	1-218-889-11	s RESISTOR, CHIP 56K 1/10W(1608)
R206	1-218-887-11	s RESISTOR, CHIP 47K 1/10W (1608)
R207	1-218-937-11	s RESISTOR, CHIP 47
R208	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R209	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R210	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R211	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R212	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R213	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R214	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R215	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R216	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R217	1-218-990-11	s RESISTOR, CHIP 0 1/16W (1005)
R218	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R219	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R220	1-216-801-11	s RESISTOR, CHIP 22 1/10W (1608)
R221	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R222	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R223	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R224	1-218-941-81	s RESISTOR, CHIP 100,1/16W (1005)
R225	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R226	1-216-817-11	s RESISTOR, CHIP 470 1/10W 1608
R227	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R228	1-218-955-11	s RESISTOR, CHIP 1.5K
R229	1-216-864-11	s CONDUCTOR, CHIP (1608)
R231	1-208-683-11	s RESISTOR CHIP 1K 1/16W (1005)
R232	1-208-855-81	s RESISTOR, CHIP 47 1/16W (1005)
R233	1-208-715-11	s RESISTOR, CHIP 22K 1/16W (1005)
R235	1-218-945-11	s RESISTOR, CHIP 220 1/16W(1005)
R236	1-218-892-11	s RESISTOR, CHIP 75K 1/10W (1608)
R237	1-218-887-11	s RESISTOR, CHIP 47K 1/10W (1608)
R238	1-218-895-11	s RESISTOR, CHIP 100K 1/10W(1608)
R239	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R240	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R241	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R244	1-218-861-11	s RESISTOR, CHIP 3.9K 1/10W(1608)
R245	1-218-973-11	s RESISTOR, CHIP 47K 1/16W (1005)
R246	1-218-969-11	s RESISTOR, CHIP 22K 1/16W (1005)
R247	1-218-969-11	s RESISTOR, CHIP 22K 1/16W (1005)
R249	1-208-709-11	s RESISTOR CHIP 12K 1/16W (1005)
R250	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R251	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R252	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R253	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R254	1-216-864-11	s CONDUCTOR, CHIP (1608)
R255	1-216-864-11	s CONDUCTOR, CHIP (1608)
R256	1-216-833-11	s RESISTOR, CHIP 10K 1/10W (1608)
R258	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R260	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R261	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R262	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R263	1-218-965-11	s RESISTOR, CHIP 10K 1/16W

(MA-132(A)G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R264	1-216-864-11	s CONDUCTOR, CHIP (1608)
R266	1-216-864-11	s CONDUCTOR, CHIP (1608)
R268	1-216-864-11	s CONDUCTOR, CHIP (1608)
R273	1-216-864-11	s CONDUCTOR, CHIP (1608)
R274	1-218-887-11	s RESISTOR,CHIP 47K 1/10W (1608)
R275	1-216-864-11	s CONDUCTOR, CHIP (1608)
R278	1-218-965-11	s RESISTOR, CHIP 10K 1/16W
R279	1-208-643-11	s RESISTOR CHIP 22 1/16W (1005)
R281	1-216-864-11	s CONDUCTOR, CHIP (1608)
R282	1-216-864-11	s CONDUCTOR, CHIP (1608)
R284	1-218-941-81	s RESISTOR,CHIP 100,1/16W (1005)
R302	1-219-365-11	s RESISTOR,CHIP
R305	1-218-282-11	s RESISTOR CHIP 22 1/2W (4532)
R307	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R308	1-216-829-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R309	1-242-967-11	s RESISTOR, CHIP 1.0 (1005)
R310	1-242-967-11	s RESISTOR, CHIP 1.0 (1005)
R311	1-218-941-81	s RESISTOR,CHIP 100,1/16W (1005)
R312	1-242-967-11	s RESISTOR, CHIP 1.0 (1005)
R313	1-242-967-11	s RESISTOR, CHIP 1.0 (1005)
R314	1-218-869-11	s RESISTOR,CHIP 8.2K 1/10W(1608)
R315	1-218-859-11	s RESISTOR,CHIP 3.3K 1/10W(1608)
R318	1-216-829-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R319	1-216-825-11	s RESISTOR,CHIP 2.2K 1/10W 1608
R320	1-242-967-11	s RESISTOR, CHIP 1.0 (1005)
R321	1-242-967-11	s RESISTOR, CHIP 1.0 (1005)
R415	1-208-699-11	s RESISTOR,CHIP 4.7K 1/16W(1005)
R417	1-208-855-81	s RESISTOR,CHIP 47 1/16W (1005)
R418	1-216-817-11	s RESISTOR,CHIP 470 1/10W 1608
R419	1-208-927-11	s RESISTOR, CHIP 47K 1/16W(1005)
R501	1-216-864-11	s CONDUCTOR, CHIP (1608)
R503	1-216-864-11	s CONDUCTOR, CHIP (1608)
R504	1-216-811-11	s RESISTOR, CHIP 150 1/10W(1608)
R505	1-216-811-11	s RESISTOR, CHIP 150 1/10W(1608)
R506	1-218-879-11	s RESISTOR,CHIP 22K 1/10W (1608)
R507	1-218-871-11	s RESISTOR,CHIP 10K 1/10W (1608)
R508	1-216-845-11	s RESISTOR,CHIP 100K 1/10W(1608)
R509	1-216-811-11	s RESISTOR, CHIP 150 1/10W(1608)
R510	1-216-811-11	s RESISTOR, CHIP 150 1/10W(1608)
R511	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R512	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R513	1-218-871-11	s RESISTOR,CHIP 10K 1/10W (1608)
R515	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R516	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R517	1-218-871-11	s RESISTOR,CHIP 10K 1/10W (1608)
R518	1-218-869-11	s RESISTOR,CHIP 8.2K 1/10W(1608)
R519	1-218-863-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R520	1-218-837-11	s RESISTOR,CHIP 390 1/10W (1608)
R521	1-216-864-11	s CONDUCTOR, CHIP (1608)
R523	1-216-864-11	s CONDUCTOR, CHIP (1608)
R524	1-216-857-11	s RESISTOR,CHIP 1M 1/10W(1608)
R525	1-216-834-11	s RESISTOR,CHIP 12K 1/16W 1608
R526	1-216-864-11	s CONDUCTOR, CHIP (1608)
R527	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R528	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R529	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R530	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R533	1-218-841-11	s RESISTOR,CHIP 560 1/10W (1608)
R534	1-218-837-11	s RESISTOR,CHIP 390 1/10W (1608)

(MA-132(A)G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R537	1-216-801-11	s RESISTOR,CHIP 22 1/10W (1608)
R539	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R540	1-216-864-11	s CONDUCTOR, CHIP (1608)
R541	1-216-864-11	s CONDUCTOR, CHIP (1608)
R542	1-218-937-11	s RESISTOR, CHIP 47
R543	1-218-937-11	s RESISTOR, CHIP 47
R544	1-218-937-11	s RESISTOR, CHIP 47
R545	1-218-937-11	s RESISTOR, CHIP 47
R546	1-218-937-11	s RESISTOR, CHIP 47
R547	1-218-937-11	s RESISTOR, CHIP 47
R548	1-218-937-11	s RESISTOR, CHIP 47
R549	1-218-937-11	s RESISTOR, CHIP 47
R562	1-216-829-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R563	1-216-829-11	s RESISTOR,CHIP 4.7K 1/10W(1608)
R564	1-216-857-11	s RESISTOR,CHIP 1M 1/10W(1608)
R565	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R566	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R567	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R573	1-216-864-11	s CONDUCTOR, CHIP (1608)
R575	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R578	1-216-864-11	s CONDUCTOR, CHIP (1608)
R582	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R583	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R584	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R601	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R602	1-216-825-11	s RESISTOR,CHIP 2.2K 1/10W 1608
R603	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R604	1-216-818-11	s RESISTOR, CHIP 560 1/10W 1608
R605	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R606	1-216-818-11	s RESISTOR, CHIP 560 1/10W 1608
R607	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R608	1-216-818-11	s RESISTOR, CHIP 560 1/10W 1608
R609	1-216-818-11	s RESISTOR, CHIP 560 1/10W 1608
R610	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R611	1-216-809-11	s RESISTOR,CHIP 100 1/10W 1608
R612	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R613	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R614	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R615	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R616	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R617	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R618	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R619	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R620	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R621	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R622	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R623	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R624	1-216-841-11	s RESISTOR, CHIP 47K 1/10W 1608
R625	1-216-825-11	s RESISTOR,CHIP 2.2K 1/10W 1608
R626	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R627	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R628	1-216-833-11	s RESISTOR,CHIP 10K 1/10W (1608)
R2000	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2001	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2002	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2003	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2004	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2005	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2006	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608

(MA-132(A)G BOARD)

Ref. No. or Q'ty	Part No.	SP Description
R2007	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2008	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2009	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2010	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2011	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2012	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2013	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2014	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2015	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2016	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2017	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2018	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2019	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2020	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2021	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
R2022	1-216-805-11	s RESISTOR,CHIP 47 1/10W 1608
RB101	1-234-378-11	s RES, NETWORK 10KX4 (1005)
RB102	1-234-378-11	s RES, NETWORK 10KX4 (1005)
RB103	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB104	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB105	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB106	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB107	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB108	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB109	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB110	1-234-372-11	s RES, NETWORK 100X4 (1005)
RB111	1-234-372-11	s RES, NETWORK 100X4 (1005)
RV503	1-225-895-11	s RESISTOR ADJ.CERMET (3TYPE) 1K
RV504	1-225-895-11	s RESISTOR ADJ.CERMET (3TYPE) 1K
RY501	1-755-380-21	s RELAY
S501	1-553-510-11	s SWITCH, SLIDE
TP206	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP207	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP301	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP305	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP310	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP314	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP501	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP502	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP503	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP504	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP505	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP506	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP507	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP508	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP509	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP510	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP511	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
TP512	1-535-757-11	s CHIP, CHECKER (CONNECTOR)
VDR301	1-801-924-21	s VARISTOR, CHIP (1608)
VDR302	1-801-924-21	s VARISTOR, CHIP (1608)
X101	1-795-613-11	s VIBRATOR, CRYSTAL (27MHZ)
X102	1-813-213-21	s VIBRATOR, CERAMIC
X500	1-795-949-11	s VIBRATOR, CRYSTAL

SE-768 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1078-892-A	s MOUNTED CIRCUIT BOARD, SE-768
C201	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C202	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C203	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C204	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C205	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C206	1-126-396-11	s CAPACITOR,ELECT 47MF/16V(CHIP)
CN201	1-766-376-11	o PIN, CONNECTOR (1.5MM) (SMD) 9P
CN202	1-695-320-11	o PIN,CONNECTOR (2P) (SMD) (1.5MM)
D202	8-719-052-25	s LED CL-200IR-X-TU-BC
IC201	8-759-694-62	s IC TA8428F(EL)
PH201	8-719-052-69	s PHOTO INTERRUPTER RPI-352
PH202	8-719-052-69	s PHOTO INTERRUPTER RPI-352
PH203	8-719-052-69	s PHOTO INTERRUPTER RPI-352
Q201	8-729-140-75	s TRANSISTOR 2SD999-CLOCK
R201	1-216-864-11	s CONDUCTOR, CHIP (1608)
R202	1-216-864-11	s CONDUCTOR, CHIP (1608)
R203	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R204	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R205	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R206	1-216-817-11	s RESISTOR,CHIP 470 1/10W 1608
R207	1-216-817-11	s RESISTOR,CHIP 470 1/10W 1608
R208	1-216-817-11	s RESISTOR,CHIP 470 1/10W 1608
R209	1-216-813-11	s RESISTOR, CHIP 220 1/10W 1608
R210	1-216-817-11	s RESISTOR,CHIP 470 1/10W 1608
R211	1-218-622-11	s RESISTOR CHIP 47/1W (6331)
R212	1-218-622-11	s RESISTOR CHIP 47/1W (6331)
R213	1-216-821-11	s RESISTOR,CHIP 1.0K 1/10W(1608)
R214	1-216-825-11	s RESISTOR,CHIP 2.2K 1/10W 1608
R216	1-218-622-11	s RESISTOR CHIP 47/1W (6331)
R217	1-218-622-11	s RESISTOR CHIP 47/1W (6331)
VDR201	1-801-924-21	s VARISTOR, CHIP (1608)
VDR202	1-801-924-21	s VARISTOR, CHIP (1608)
VDR203	1-801-924-21	s VARISTOR, CHIP (1608)

6-4. Supplied Accessories

SE-769 BOARD

Ref. No. or Q'ty	Part No.	SP Description
1pc	A-1078-894-A	s MOUNTED CIRCUIT BOARD, SE-769
C301	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
C302	1-162-970-11	s CAPACITOR CERAMIC 0.01MF/25V B
CN301	1-774-730-21	s PIN, CONNECTOR (PC BOARD) 3P
D301	6-501-381-01	s DIODE CL-201IR-X-TSL-BC
Q302	6-550-794-01	s TRANSISTOR CPT-184S-C-TU-BCD
R301	1-216-864-11	s CONDUCTOR, CHIP (1608)
R302	1-216-864-11	s CONDUCTOR, CHIP (1608)
R303	1-218-845-11	s RESISTOR,CHIP 820 1/10W (1608)
VDR301	1-801-924-21	s VARISTOR, CHIP (1608)

SU-112 BOARD

Ref. No. or Q'ty	Part No.	SP Description
C401	1-164-227-11	s CAPACITOR,CERAMIC 0.022MF/25V
CN401	1-580-055-21	o PIN, CONNECTOR 2P

SUPPLIED ACCESSORIES

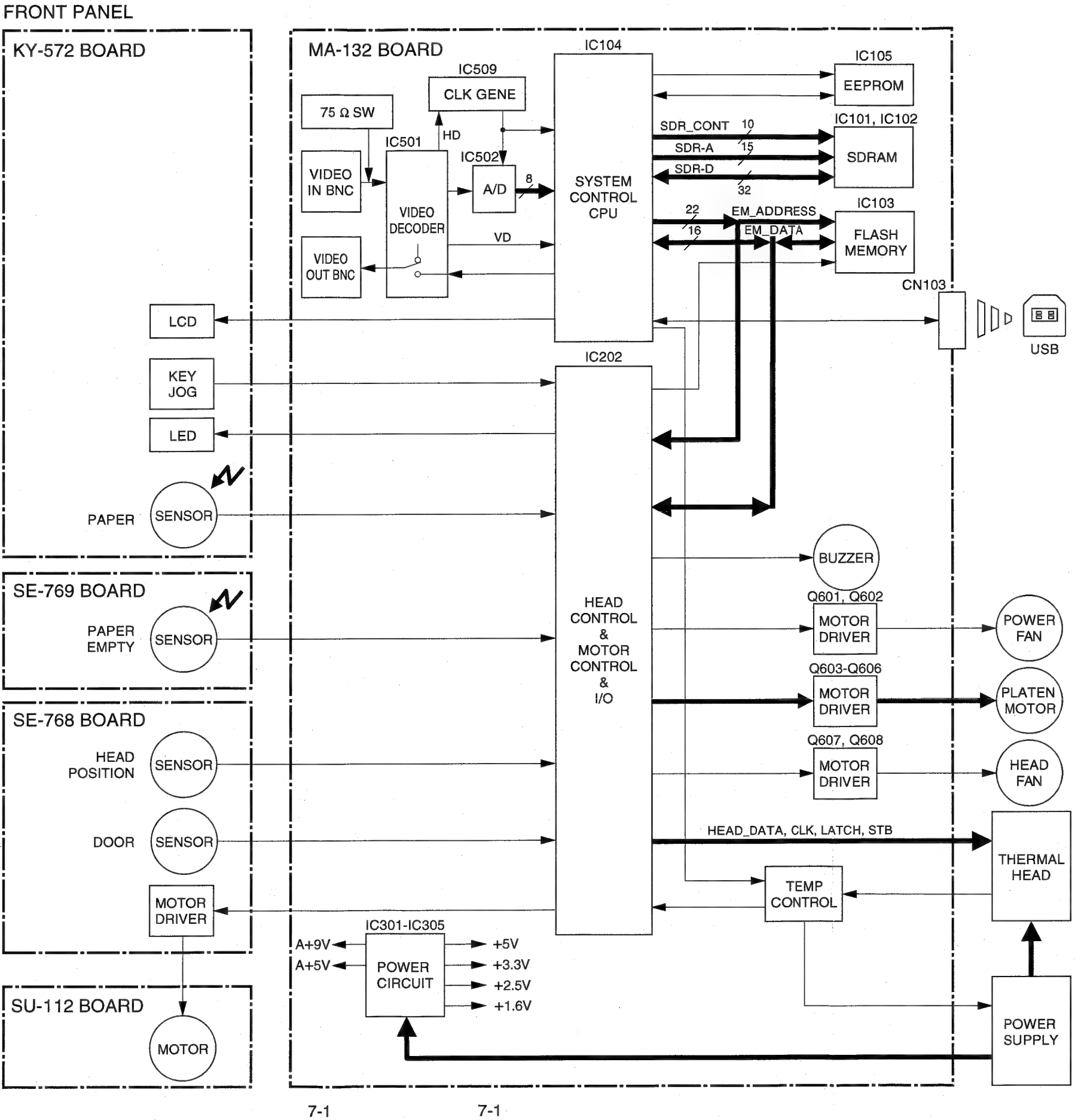
*1: [UP-897MD(UC2)]
 *2: [UP-897MD(CED)]
 *3: [UP-897MD(UC2/CED)]

Ref. No. or Q'ty	Part No.	SP Description
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1pc	*3 1-551-475-31	s 3C2V 1.5M CABLE
1pc Δ	*2 1-551-631-00	s POWER-SUPPLY CORD (IEC)
1pc Δ	*1 1-556-813-22	s CORD, POWER

1pc	2-345-262-11	s INSTRUCTIONS FOR USE
1pc	3-623-865-01	s SHEET,HEAD CLEANING (ACLYLIC)

Section 7
Block Diagram

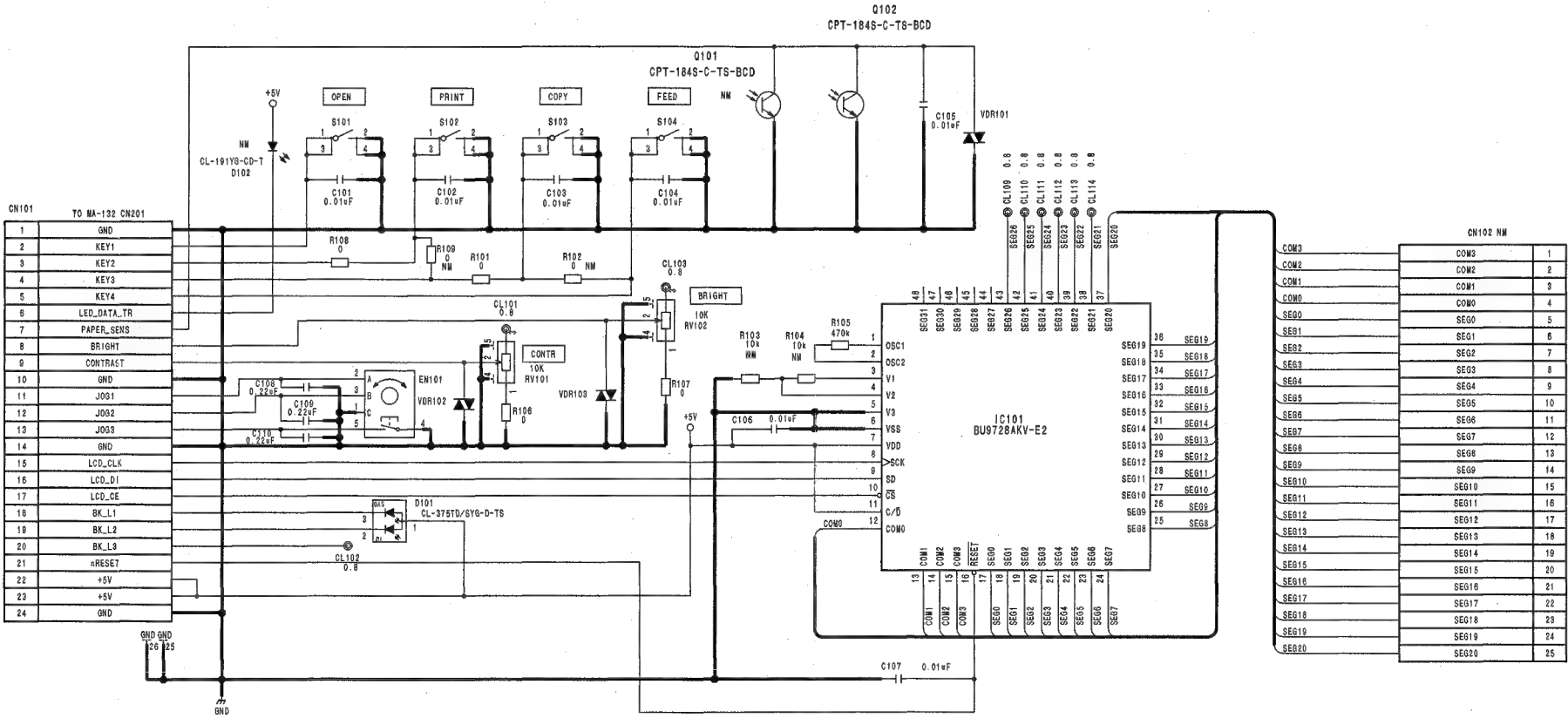


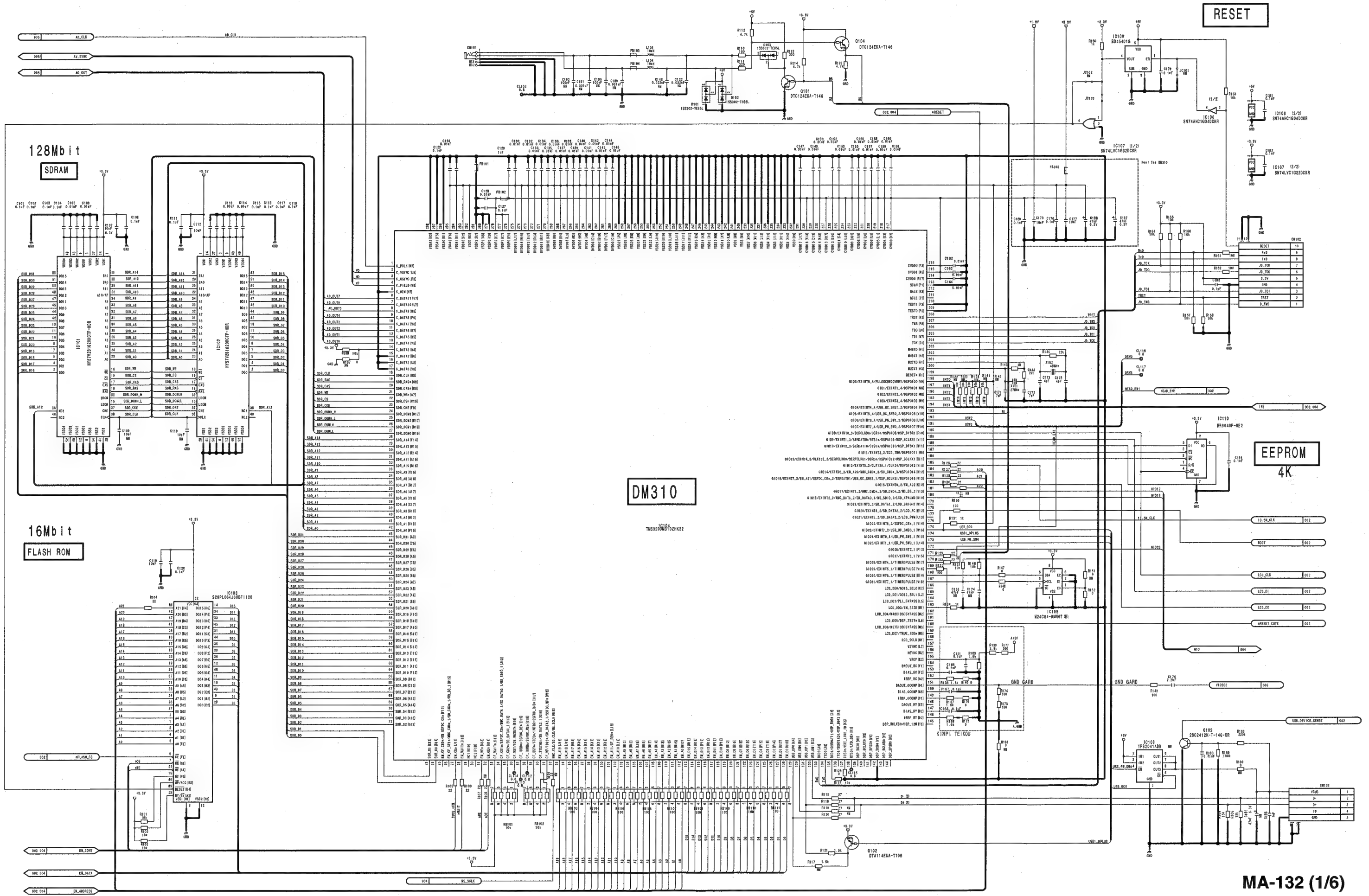
Overall

Section 8
Schematic Diagrams

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MA-132	8-3
SE-768	8-9
SE-769	8-9
SU-112	8-9
Frame Wiring	8-10





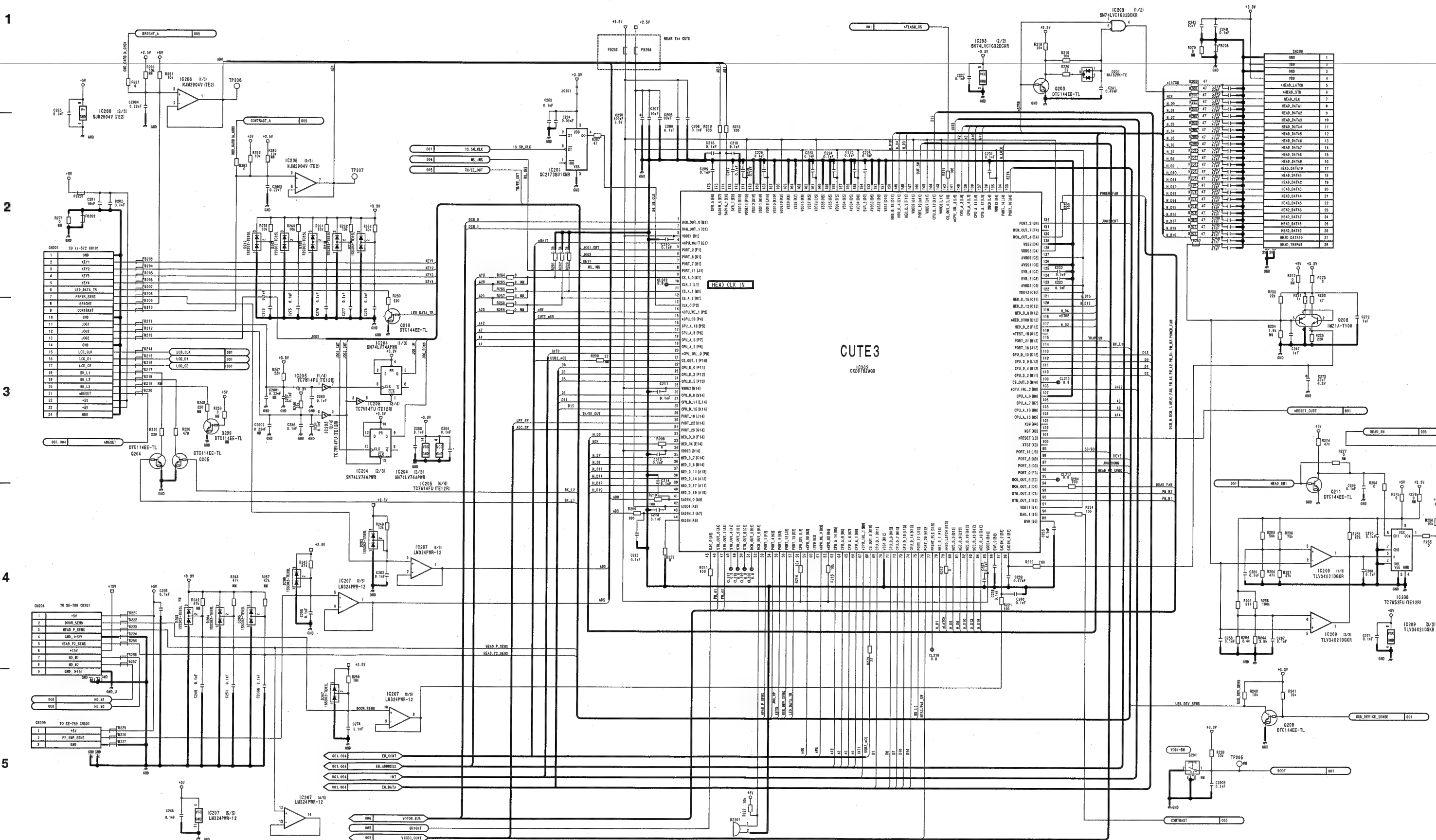
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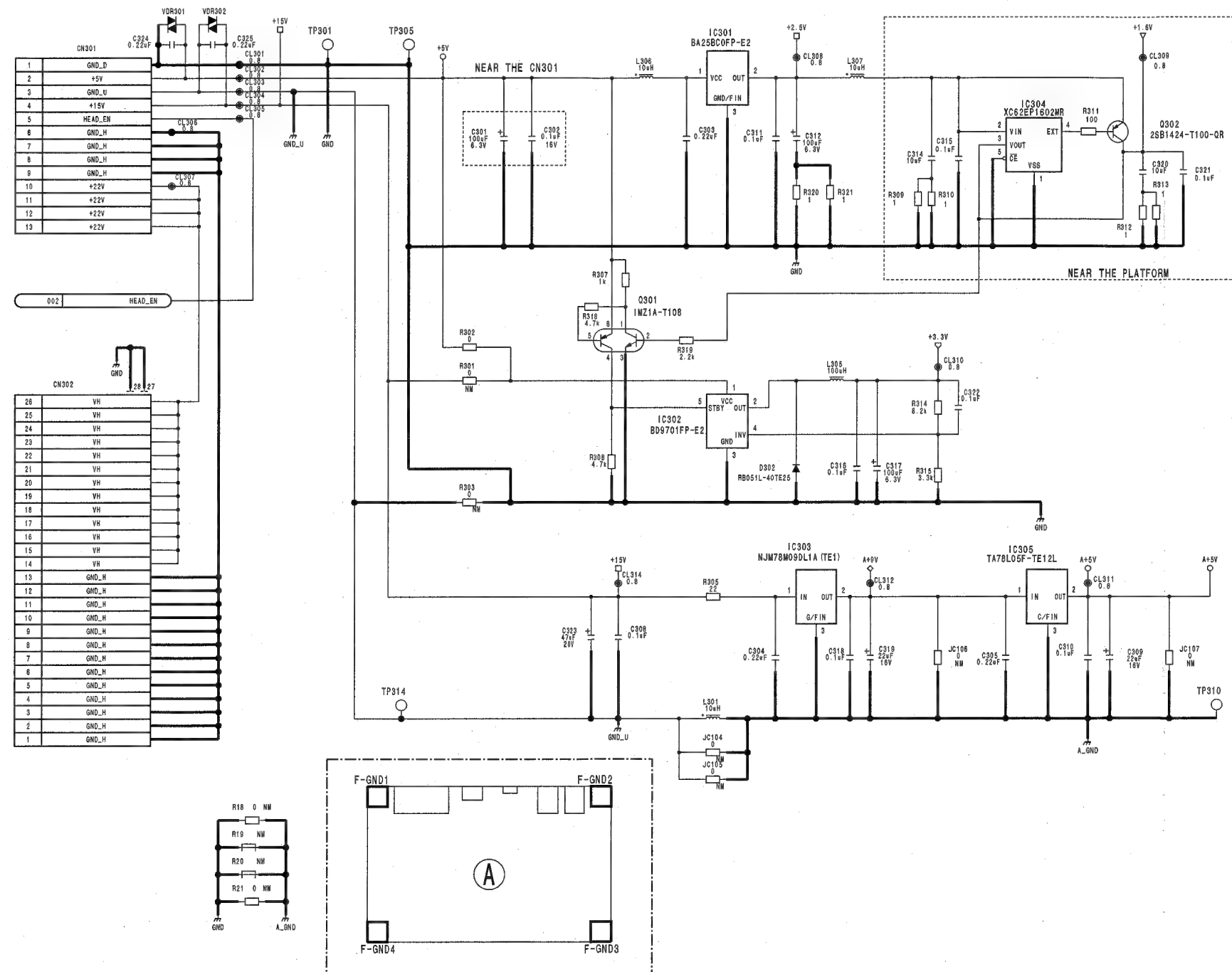
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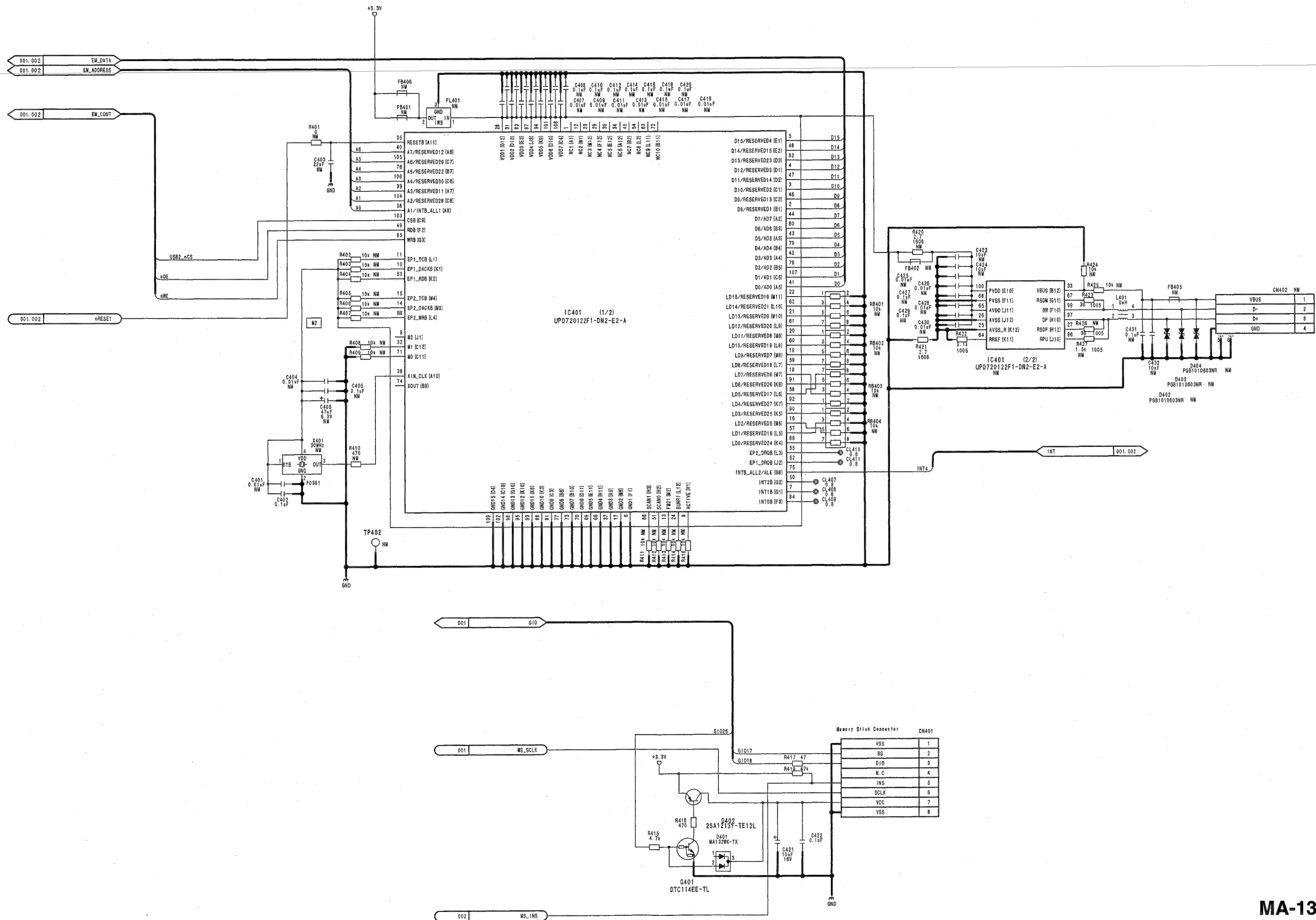
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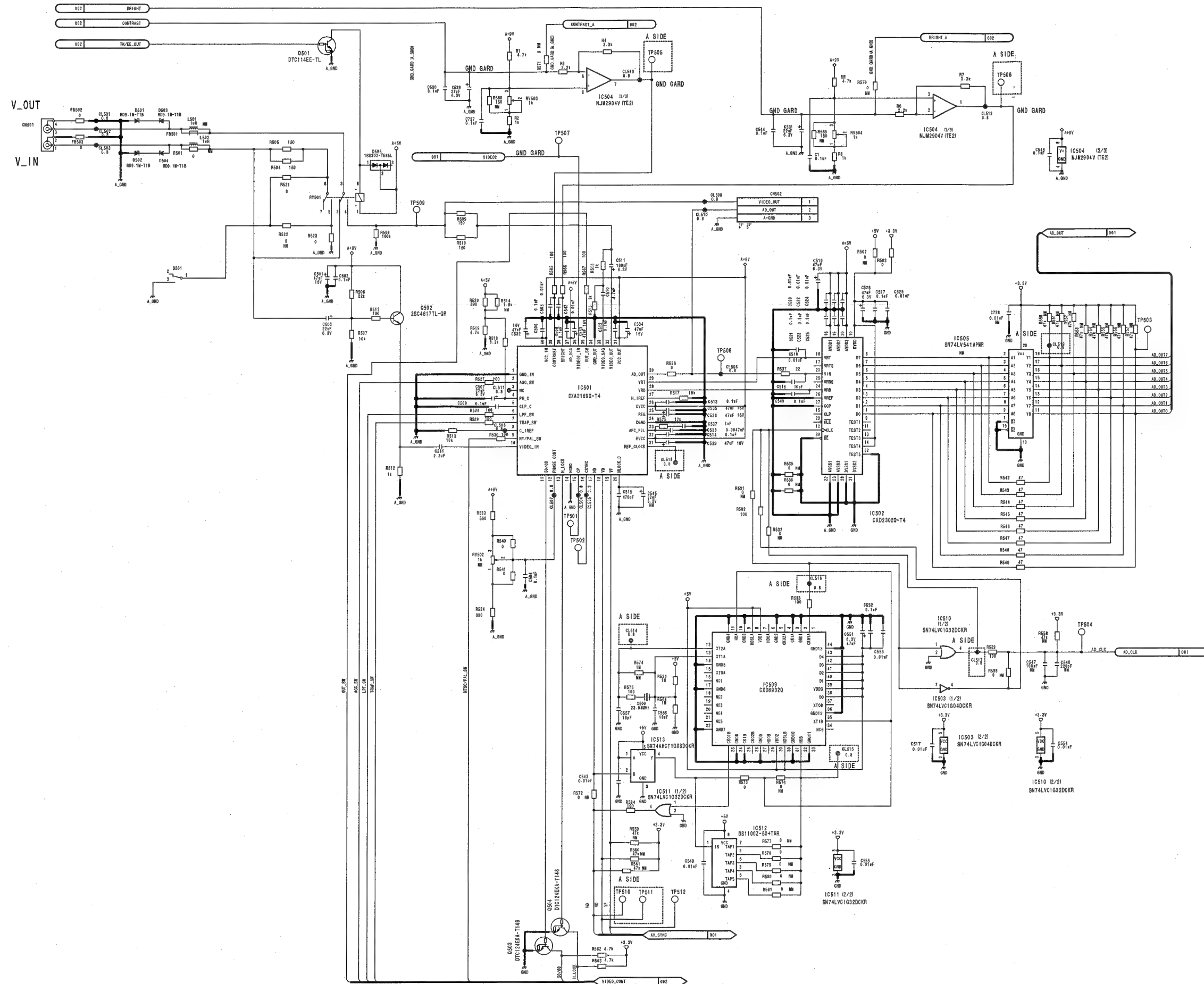
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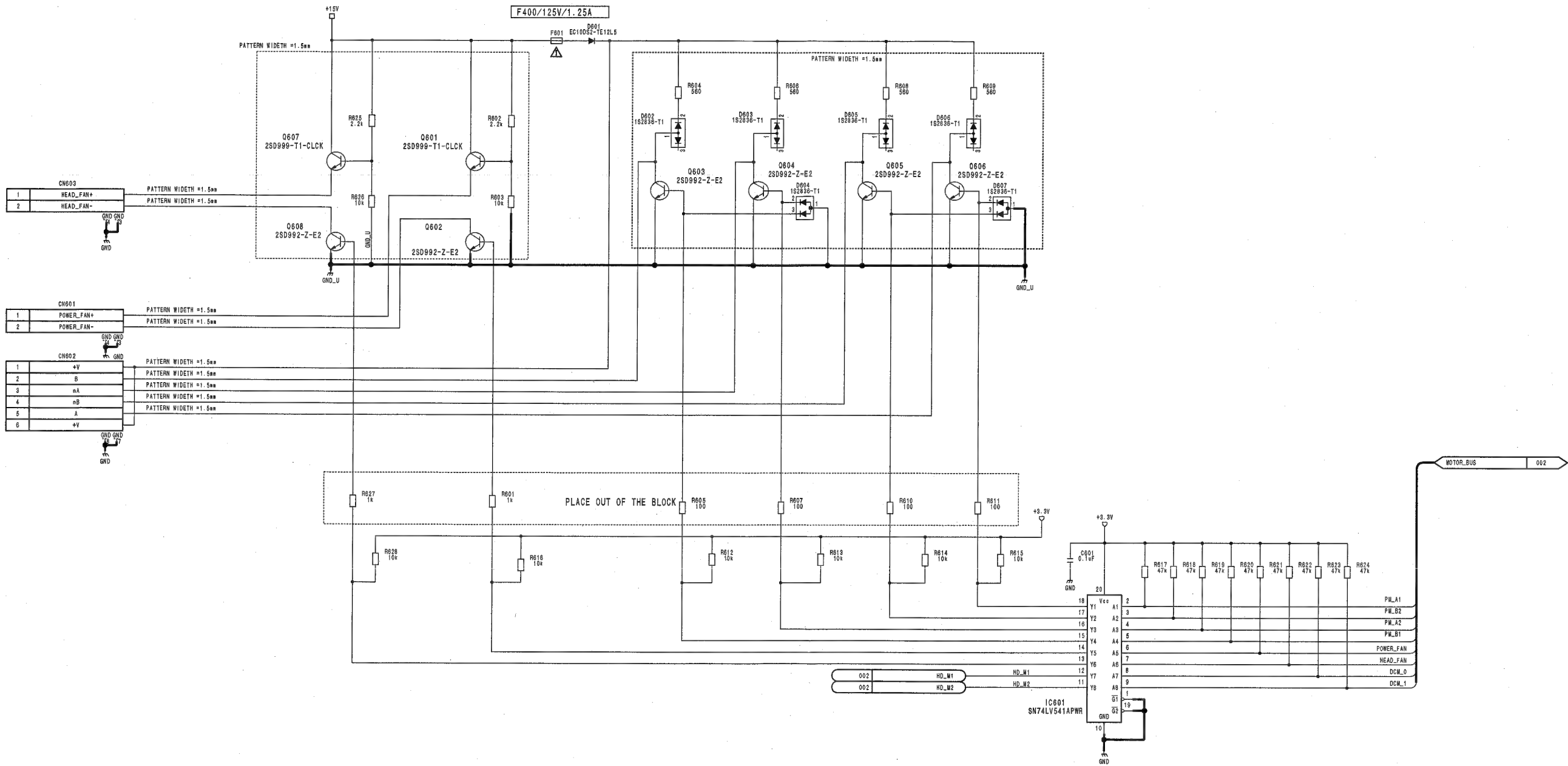
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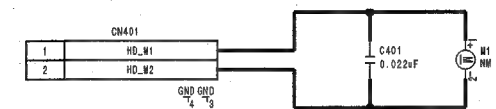
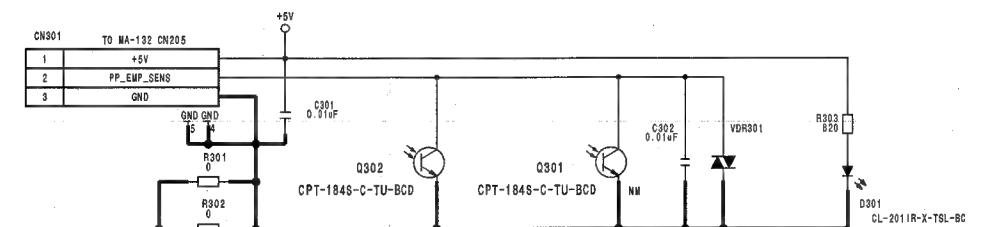
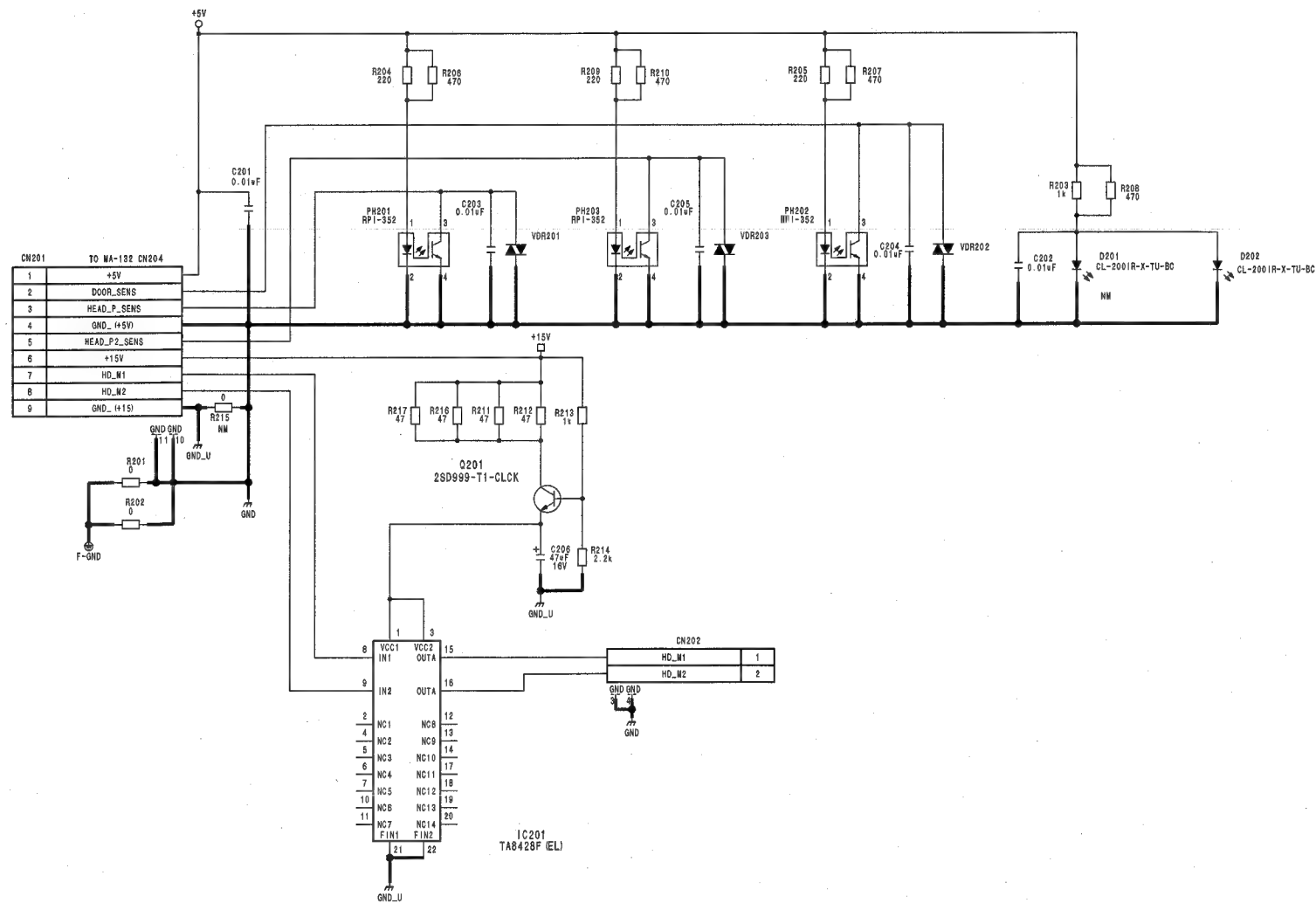




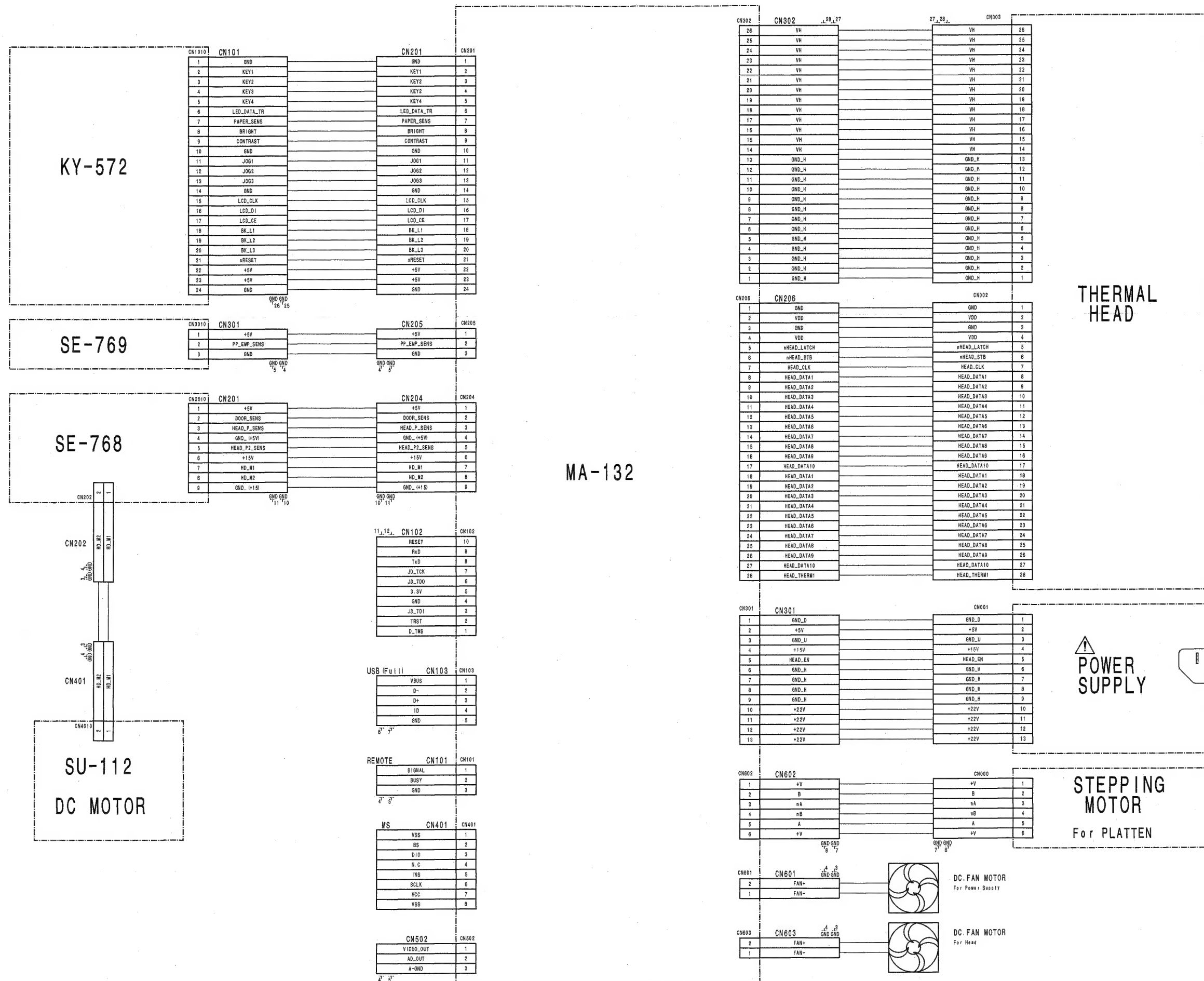








Frame Wiring Frame Wiring



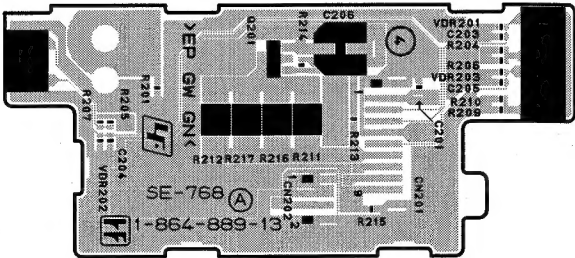
Frame Wiring

UP-897MD

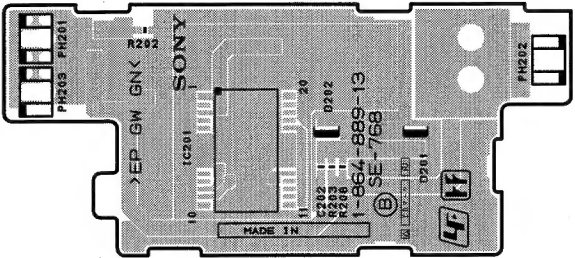
Section 9
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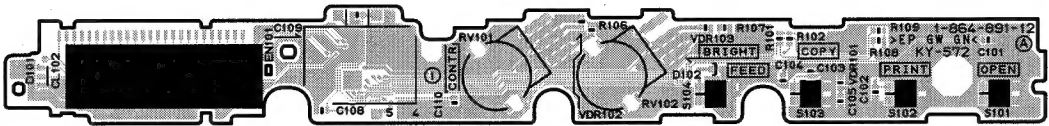
Board name	Page
KY-572	9-1
SE-768	9-1
SE-769	9-1
SU-112	9-1
MA-132	9-2



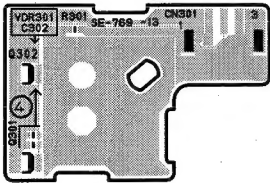
SE-768 -A SIDE-
SUFFIX: -13



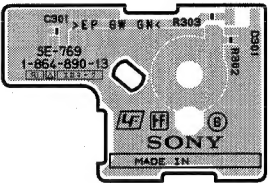
SE-768 -B SIDE-
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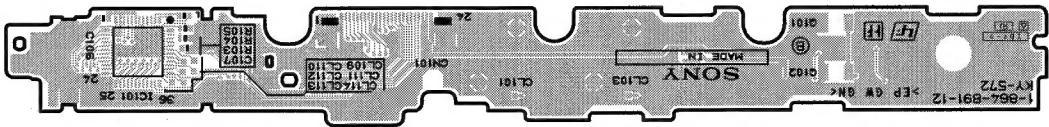
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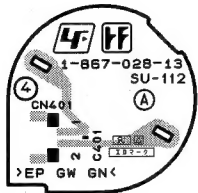
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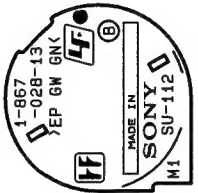
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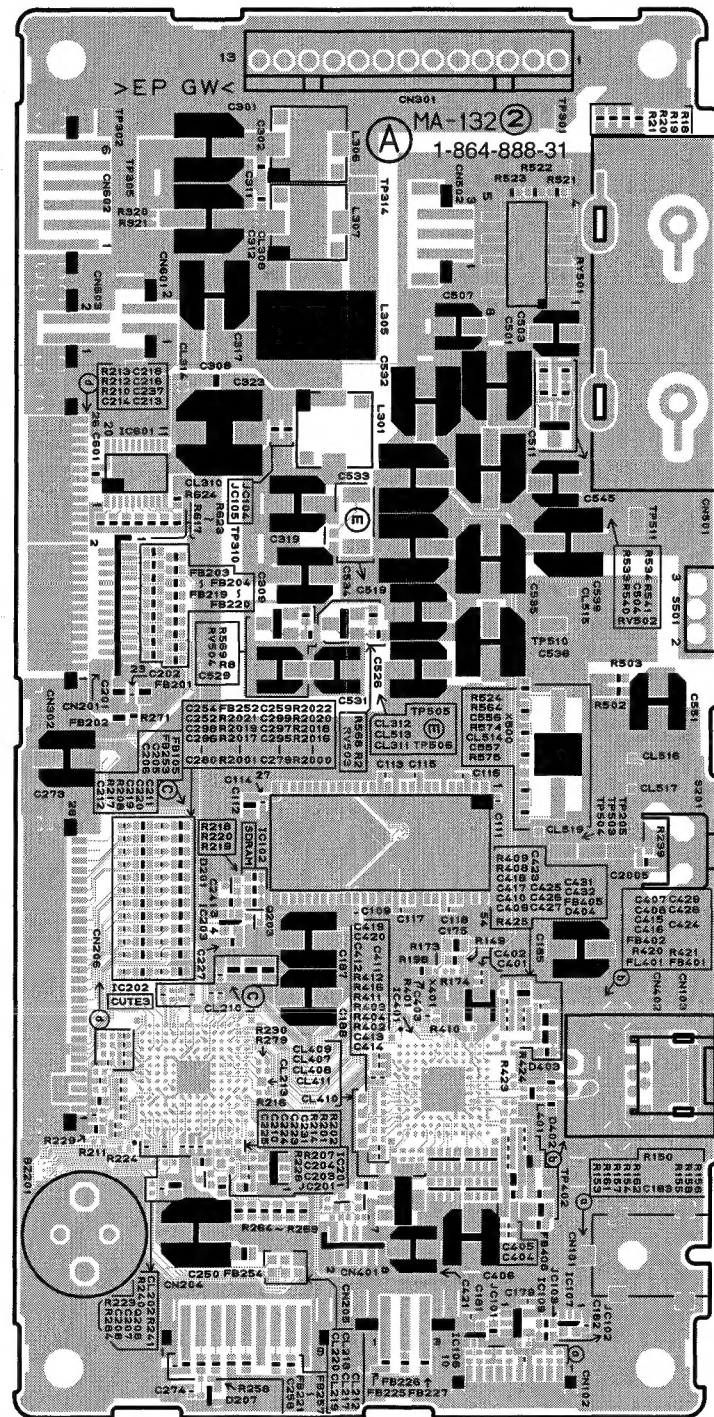
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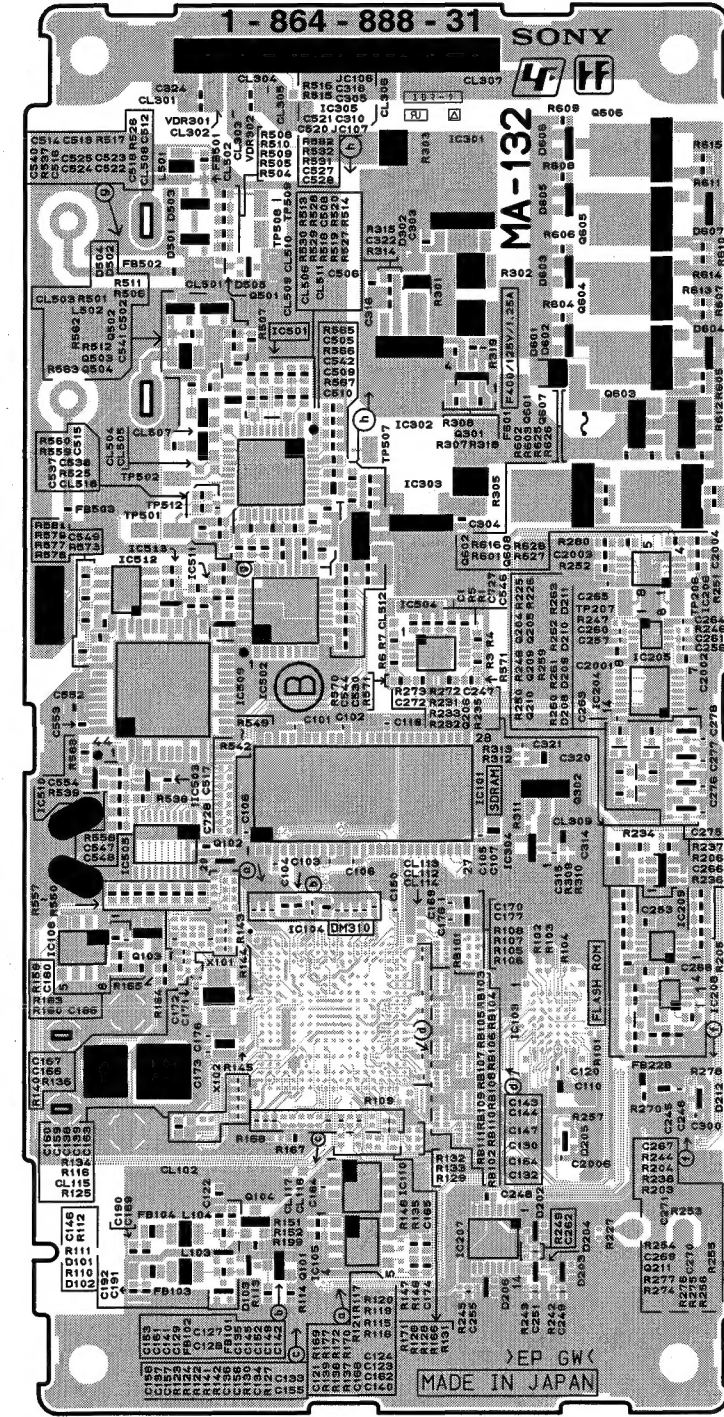
SU-112 -A SIDE-
SUFFIX: -13



SU-112 -B SIDE-
SUFFIX: -13



MA-132 -A SIDE-
SUFFIX: -31



MA-132 -B SIDE-
SUFFIX: -31

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer :

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.5 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. (See Fig. A)

